

EXHIBIT 46

1 IN THE UNITED STATES DISTRICT COURT
2 FOR THE EASTERN DISTRICT OF NEW JERSEY

3 -----)
4 IN RE JOHNSON & JOHNSON)
5 TALCUM POWDER PRODUCTS)
6 MARKETING, SALES) MDL NO.
7 PRACTICES, AND PRODUCTS) 16-2738 (FLW) (LHG)
8 LIABILITY LITIGATION)
9 -----)

10) THIS DOCUMENT RELATES TO)
11) ALL CASES)
12))

13 -----)
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 — — —
 Saturday, January 19, 2019
 — — —

1 Videotaped Deposition of ARCH I. "CHIP"
2 CARSON, M.D., Ph.D., held at the Marriott
3 Houston Medical Center, 6580 Fannin Street,
4 Houston, Texas, commencing at 9:02 a.m., on
5 the above date, before Michael E. Miller,
6 Fellow of the Academy of Professional
7 Reporters, Certified Court Reporter,
8 Registered Diplomat Reporter, Certified
9 Realtime Reporter and Notary Public.

10 — — —
11 GOLKOW LITIGATION SERVICES
12 877.370.DEPS | fax 917.591.5672
13 deps@golkow.com

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<p>1 A P P E A R A N C E S: 2 BEASLEY ALLEN, PC 3 BY: P. LEIGH O'DELL, ESQUIRE 4 leigh.odell@beasleyallen.com 5 MARGARET M. THOMPSON, ESQUIRE 6 margaret.thompson@beasleyallen.com 7 234 Commerce Street 8 Montgomery, Alabama 36103-4160 9 (334) 269-2343 10 Counsel for Plaintiffs' Steering 11 Committee 12 13 BURNS CHAREST LLP 14 BY: AMANDA KLEVORN, ESQUIRE 15 aklevorn@burnscharest.com 16 365 Canal Street 17 Suite 1170 18 New Orleans, Louisiana 70130 19 (504) 799-2845 20 Counsel for Plaintiffs 21 22 TUCKER ELLIS LLP 23 BY: MICHAEL C. ZELLERS, ESQUIRE 24 michael.zellers@tuckerellis.com 515 South Flower Street 42nd Floor Los Angeles, California 90071 (213) 430-3400 Counsel for Johnson & Johnson Defendants DRINKER BIDDLE & REATH, LLP BY: KATHERINE MCBETH, ESQUIRE katherine.mcbeth@dbb.com One Logan Square, Suite 2000 Philadelphia, Pennsylvania 19103 (215) 988-2706 Counsel for Johnson & Johnson Defendants</p>	<p>1 INDEX 2 3 APPEARANCES 2 4 PROCEEDINGS 8 5 6 EXAMINATION OF ARCH I. "CHIP" CARSON, M.D., Ph.D.: 7 BY MR. ZELLERS 9 8 BY MS. BOCKUS 284 9 BY MS. APPEL 343 10 11 CERTIFICATE 364 12 ERRATA 366 13 ACKNOWLEDGMENT OF DEPONENT 367 14 LAWYER'S NOTES 368 15 16 17 18 19 20 21 22 23 24</p>
Page 3	Page 5
<p>1 A P P E A R A N C E S: 2 DYKEMA GOSSETT PLLC 3 BY: JANE E. BOCKUS, ESQUIRE 4 jbockus@dykema.com 5 112 East Pecan Street 6 Suite 1800 7 San Antonio, Texas 78205 8 (210) 554-5500 9 Counsel for Imerys Talc America 10 11 COUGHLIN DUFFY LLP 12 BY: JONATHAN F. DONATH, ESQUIRE 13 jdonath@coughlinduffy.com 14 350 Mount Kemble Avenue 15 Morristown, New Jersey 07962 16 (973) 267-0058 17 Counsel for Imerys Talc America 18 19 TUCKER ELLIS LLP 20 BY: CAROLINE M. TINSLEY, ESQUIRE 21 caroline.tinsley@tuckerellis.com 22 100 South Fourth Street, Suite 600 23 St. Louis, MO 63102 24 (216) 696-3675 Counsel for PTI Royston LLC and PTI Union LLC SEYFARTH SHAW, LLP BY: RENEE B. APPEL, ESQUIRE rappel@seyfarth.com 975 F Street, N.W. Washington, D.C. 20004-1454 (202) 463-2400 Counsel for Personal Care Products VIDEOGRAPHER: DOUG OVERSTREET, Golkow Litigation Services</p>	<p>1 DEPOSITION EXHIBITS 2 ARCH I. "CHIP" CARSON, M.D., Ph.D. 3 January 19, 2019 4 NUMBER DESCRIPTION PAGE 5 Exhibit 1 Notice of Deposition 10 6 Exhibit 2 11/16/18 Carson Expert Report 15 7 8 Exhibit 3 Carson Curriculum Vitae 21 9 Exhibit 4 Listing of Literature Reviewed 21 10 Exhibit 5 2019 Longo et al Publication 26 11 Exhibit 6 2019 Fletcher et al Publication 26 12 Exhibit 7 Undated Taher et al Publication 26 13 Exhibit 8 1952 Graham et al Publication 29 14 Exhibit 9 12/18 Health Canada Draft Screening Assessment 30 15 16 Exhibit 10 1/1/14 FDA Letter to Epstein 31 17 Exhibit 11 1991 Blount et al Publication 32 18 19 Exhibit 12 1974 Parmley et al Publication 32 20 Exhibit 13 USB Drive Containing Materials Reviewed 36 21 22 Exhibit 14 8/1/00 Health Canada Decision-Making Framework 98 23 24</p>

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DEPOSITION EXHIBITS			PROCEEDINGS		
			(January 19, 2019 at 9:02 a.m.)		
Exhibit 15	Handwritten List of Materials Reviewed by Dr. Carson	124	THE VIDEOGRAPHER: We are now		
Exhibit 16	1979 Chappell et al Publication	130	on the record. My name is Doug		
Exhibit 17	2011 Reid et al Publication	159	Overstreet. I'm the videographer for		
Exhibit 18	2011 Camargo et al Publication	163	Golkow Litigation Services. Today is		
Exhibit 19	2013 Terry et al Publication	192	January 19th, 2019. The time is		
Exhibit 20	2016 Cramer et al Publication	195	9:02 a.m.		
Exhibit 21	IARC Classification Groups Document	225	This video deposition is being		
Exhibit 22	2017 Berge et al Publication	243	held in Houston, Texas in the matter		
Exhibit 23	2007 Langseth et al Publication	247	of Talcum Powder Litigation MDL		
Exhibit 24	2016 Schildkraut et al Publication	271	No. 2738.		
Exhibit 25	Excerpt from IARC Monograph 93	289	The deponent is Dr. Chip		
			Carson.		
			Will counsel please identify		
			themselves for the record.		
			MS. O'DELL: Leigh O'Dell,		
			Beasley Allen, for the plaintiffs.		
			DR. THOMPSON: Margaret		
			Thompson, Beasley Allen, for the		
			plaintiffs.		
			MS. KLEVORN: Amanda Klevorn,		
			Burns Charest, for the plaintiffs.		
			MR. ZELLERS: Michael Zellers		

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REFERENCED EXHIBITS			for the Johnson & Johnson defendants.		
			MS. McBETH: Katherine McBeth,		
NUMBER		PAGE	Drinker Biddle & Reath, for the		
Exhibit Hopkins-28	148		Johnson & Johnson defendants as well.		
Exhibit Pier-47	148		MS. BOCKUS: Jane Bockus for		
Exhibit P-346	28		Imerys.		
			MR. DONATH: Jonathan Donath		
			from Coughlin Duffy for Imerys.		
			MS. APPEL: Renée Appel from		
			Seyfarth Shaw for Personal Care		
			Products.		
			MS. TINSLEY: Caroline Tinsley,		
			Tucker Ellis, for PTI Union, LLC and		
			PTI Royston, LLC.		
			THE VIDEOGRAPHER: The court		
			reporter today is Mr. Mike Miller, and		
			he will now swear in the witness.		
			ARCH I. "CHIP" CARSON, M.D., Ph.D.,		
			having been duly sworn,		
			testified as follows:		
			EXAMINATION		
			BY MR. ZELLERS:		
			Q. Can you state your name,		
			please.		

<p style="text-align: right;">Page 10</p> <p>1 A. Arch Carson.</p> <p>2 Q. You are a physician; is that</p> <p>3 right?</p> <p>4 A. I am.</p> <p>5 Q. A medical toxicologist?</p> <p>6 A. Yes.</p> <p>7 Q. We are here today to take your</p> <p>8 deposition in the talc MDL litigation</p> <p>9 proceedings; is that right?</p> <p>10 A. As far as I know, yes.</p> <p>11 Q. You are an expert witness for</p> <p>12 the plaintiffs in that litigation; is that</p> <p>13 right?</p> <p>14 A. Yes.</p> <p>15 Q. Did you receive a notice of</p> <p>16 deposition, which we'll mark as Exhibit 1, to</p> <p>17 appear here today?</p> <p>18 (Carson Deposition Exhibit 1</p> <p>19 marked.)</p> <p>20 A. Yes, I received a copy of this</p> <p>21 document.</p> <p>22 MS. O'DELL: And, Michael, just</p> <p>23 for the record, we just reassert all</p> <p>24 our previously served objections to</p>	<p style="text-align: right;">Page 12</p> <p>1 BY MR. ZELLERS:</p> <p>2 Q. As best we can, let me finish</p> <p>3 my question before you start to give your</p> <p>4 answer. I'll do the same and allow you to</p> <p>5 finish your answer before I ask you another</p> <p>6 question so our court reporter can take down</p> <p>7 what each of us say.</p> <p>8 Can you do that?</p> <p>9 A. Yes.</p> <p>10 Q. In response to the notice of</p> <p>11 deposition, which we've marked as Exhibit 1,</p> <p>12 have you brought with you certain documents</p> <p>13 here today?</p> <p>14 A. I have a collection of</p> <p>15 documents that in part respond to these</p> <p>16 requests, yes.</p> <p>17 Q. Do you have any documents in</p> <p>18 your possession that are responsive to the</p> <p>19 notice of deposition, Exhibit 1, that you</p> <p>20 have not brought here today?</p> <p>21 A. I would have to go through</p> <p>22 these things one by one, but --</p> <p>23 Q. You didn't do that before we</p> <p>24 came here today?</p>
<p style="text-align: right;">Page 11</p> <p>1 the notice.</p> <p>2 MR. ZELLERS: Thank you.</p> <p>3 BY MR. ZELLERS:</p> <p>4 Q. You have given deposition</p> <p>5 testimony in the past; is that right?</p> <p>6 A. I have.</p> <p>7 Q. On how many occasions?</p> <p>8 A. Probably 30, 35.</p> <p>9 Q. You are familiar with the</p> <p>10 procedures we're going to follow today?</p> <p>11 A. More or less, I think.</p> <p>12 Q. If at any time I ask you a</p> <p>13 question and you don't understand it, tell me</p> <p>14 you don't understand it and I'll repeat it or</p> <p>15 rephrase it to try to make it clear to you.</p> <p>16 Can you do that?</p> <p>17 A. Yes.</p> <p>18 Q. If you answer a question that I</p> <p>19 ask or that any of the counsel ask, we're</p> <p>20 going to assume that you understood it; is</p> <p>21 that fair?</p> <p>22 MS. O'DELL: Object to form.</p> <p>23 A. That's fair.</p> <p>24 ///</p>	<p style="text-align: right;">Page 13</p> <p>1 A. I did, but the plaintiffs'</p> <p>2 attorneys --</p> <p>3 MS. O'DELL: Let me just stop</p> <p>4 you, Dr. Carson, just because</p> <p>5 discussing what we've discussed is not</p> <p>6 within the purview of this deposition.</p> <p>7 That's privileged. Let me just say --</p> <p>8 THE WITNESS: All right.</p> <p>9 MS. O'DELL: -- Dr. Carson, in</p> <p>10 response to the notice, has brought</p> <p>11 with him copies of the cited materials</p> <p>12 in his report, and that's in the</p> <p>13 binder that is to his left.</p> <p>14 He's brought with him copies of</p> <p>15 certain documents that were listed on</p> <p>16 his materials considered list. He</p> <p>17 doesn't have a physical copy of</p> <p>18 everything on his materials considered</p> <p>19 list.</p> <p>20 I brought today a thumb drive</p> <p>21 that has a copy of all the items on</p> <p>22 his materials considered list. If you</p> <p>23 would like access to that, it's</p> <p>24 available to you.</p>

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1 And then in addition, he has
 2 brought some additional materials that
 3 he has reviewed since the service of
 4 his report.
 5 The only other item, as I
 6 recall, on the notice of deposition
 7 request for documents that has not
 8 been brought to the deposition is
 9 copies of invoices and Dr. Carson has
 10 not sent us an invoice. That's why we
 11 don't have a copy.
 12 So to try to short-circuit
 13 this, just to make sure since we made
 14 decisions about what's produced and
 15 what's not, I'll just say all that for
 16 the record. And if you'd like that,
 17 you're welcome to it.
 18 BY MR. ZELLERS:
 19 Q. Dr. Carson, you heard
 20 Ms. O'Dell describe what you brought here
 21 today. Is all of that accurate?
 22 A. It is.
 23 Q. Are you aware of there being
 24 any documents or materials that are

Page 15

1 responsive to the deposition notice that you
 2 have not brought with you here today?
 3 A. No.
 4 Q. I'm trying to understand what
 5 counsel for plaintiffs, Ms. O'Dell, has said,
 6 so let me ask you some questions.
 7 You have brought with you today
 8 in a binder some of the cited materials in
 9 your report; is that right?
 10 A. Yes. This is intended to be a
 11 complete set of the cited references, with
 12 one exception.
 13 Q. When you say cited
 14 references --
 15 A. From my report.
 16 Q. Your expert report, we will
 17 mark as Exhibit 2.
 18 (Carson Deposition Exhibit 2
 19 marked.)
 20 BY MR. ZELLERS:
 21 Q. Is Deposition Exhibit 2 your
 22 report in this matter?
 23 A. It is. It also has
 24 attachments.

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1 Q. I'll ask you about the
 2 attachments in a moment.
 3 Does this report,
 4 Deposition Exhibit 2, contain all of the
 5 opinions that you intend to offer at any
 6 trial or hearing of this matter?
 7 A. In general, it contains all of
 8 my opinions. I expect to expand on those
 9 opinions possibly in this deposition or in
 10 the future.
 11 Q. Today's my opportunity to ask
 12 you what your opinions are in this matter.
 13 As of today, are the opinions
 14 that you expressed to us set forth at any
 15 trial or hearing in this matter, are they
 16 contained in your report, Exhibit 2?
 17 A. I have seen information that
 18 has become available recently that I did not
 19 have at that time this report was finalized,
 20 and I have modified my opinions very slightly
 21 as a result of that information.
 22 Q. How have you modified your
 23 opinions?
 24 A. My opinions have essentially

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1 been strengthened as they relate to the
 2 causation question between perineal talcum
 3 powder use and the occurrence of ovarian
 4 cancers.
 5 Q. Other than you believing that
 6 your opinions are strengthened with respect
 7 to the association between perineal talcum
 8 powder use and ovarian cancer, have your
 9 opinions changed at all since you prepared
 10 your report, Exhibit 2?
 11 A. No.
 12 Q. Are there any new or additional
 13 opinions as of today that you expect to
 14 testify to at trial or any hearing of this
 15 matter other than your report, Exhibit 2, and
 16 as you have qualified that report by stating
 17 that your opinions on association are
 18 stronger today?
 19 A. No.
 20 MS. O'DELL: Object to the
 21 form.
 22 BY MR. ZELLERS:
 23 Q. Okay. Your report has a list
 24 of references that begin on page 11.

Page 18

1 Do you see that?

2 A. Yes.

3 Q. What are the references? What

4 do they relate to? And by that, I mean --

5 I'm just trying to understand what this list

6 is.

7 A. This is a list of references

8 from which I gleaned information that were

9 important to my forming opinions regarding

10 the question that was given to me, and they

11 contribute to pieces of the report in various

12 ways.

13 They don't represent a complete

14 review that I made in preparing my report,

15 but all are important in some way in terms of

16 coming to my conclusions.

17 Q. Are the references that you

18 list in your report from page 11 up and

19 through page 16, are those the materials that

20 you are relying on in terms of your opinions

21 that you're expressing in your report?

22 MS. O'DELL: Objection to form.

23 A. Yes.

24 ///

Page 19

1 BY MR. ZELLERS:

2 Q. What, then, is the difference

3 between the references to your report and

4 Exhibit B, which has a caption, Literature?

5 A. The Exhibit B represents a

6 larger set of documents, including scientific

7 literature, technical reports, and so forth

8 that I reviewed in preparation of my report

9 and the formation of my opinions; but they

10 did not contain information that I felt

11 necessary to cite in my report.

12 Q. The literature that you cite to

13 as Appendix B of your report are materials

14 that you reviewed but are not the materials

15 that you're specifically relying on. The

16 materials that you're specifically relying on

17 are set forth in your references list; is

18 that right?

19 MS. O'DELL: Excuse me. Object

20 to the form, misstates his testimony.

21 A. My opinions are based on my

22 total review of the literature as well as my

23 training, my professional experience and many

24 other factors.

Page 20

1 I produced a report that I

2 thought was responsive to the question that

3 was given to me by the plaintiffs' attorneys,

4 and within that report I felt it necessary to

5 cite specific key references that contributed

6 to items in that report.

7 BY MR. ZELLERS:

8 Q. And those are --

9 MS. O'DELL: Excuse me, sir.

10 Are you finished, Dr. Carson?

11 THE WITNESS: Yes.

12 MS. O'DELL: Okay. Sorry.

13 BY MR. ZELLERS:

14 Q. Those are the items that you've

15 listed under References; is that right?

16 A. Yes.

17 Q. Literature are other materials

18 that you have reviewed but didn't rise to the

19 level of you citing them as a reference for

20 your report, correct?

21 A. That is correct, but they do

22 contribute information that I utilize in

23 terms of the whole to formulate my opinions.

24 Q. Let me mark several of the

Page 21

1 attachments to your report as separate

2 exhibits.

3 (Carson Deposition Exhibit 3

4 marked.)

5 BY MR. ZELLERS:

6 Q. Exhibit 3 is your curriculum

7 vitae that was attached to your report; is

8 that right?

9 A. Yes.

10 (Carson Deposition Exhibit 4

11 marked.)

12 BY MR. ZELLERS:

13 Q. Exhibit 4 is a copy of your

14 literature list that we just discussed that

15 is in your report; is that right?

16 A. Yes.

17 MS. O'DELL: Thank you.

18 BY MR. ZELLERS:

19 Q. The one difference with

20 Exhibit 4, your literature list that's

21 attached to your report as Appendix B is not

22 numbered. I've gone ahead and numbered the

23 pages on Exhibit 4, your literature list, in

24 case we want to refer to a specific page.

Page 22

1 Today, when I refer to
 2 products, talc products, baby powder or
 3 Shower to Shower, I'm referring to the baby
 4 powder product manufactured by Johnson &
 5 Johnson Consumer Products Inc. and the Shower
 6 to Shower product formerly manufactured by
 7 Johnson & Johnson Consumer Products Inc.
 8 Do you understand that?
 9 A. Yes.
 10 Q. Is your report, Exhibit 2,
 11 accurate?
 12 A. I believe so.
 13 Q. Do you believe it's complete?
 14 A. In terms of its focus, yes.
 15 Q. What do you mean in terms of
 16 its focus?
 17 A. It covers specific aspects of a
 18 larger question, and regarding those specific
 19 aspects, I believe it is complete.
 20 Q. It covers the aspects of the
 21 question that you intend to offer opinions
 22 on, correct?
 23 A. That is correct.
 24 Q. What is the question that was

Page 23

1 given to you by counsel for plaintiffs in
 2 this litigation?
 3 A. The question is do the -- does
 4 the habitual use of talcum powder products
 5 cause ovarian cancer.
 6 Q. Were you given any other
 7 questions to answer or opine on in this
 8 litigation?
 9 A. Not specifically.
 10 Q. What do you understand habitual
 11 use of talcum powder to refer to?
 12 A. It means routine use, periodic
 13 use.
 14 Q. Over any period of time?
 15 A. Over an extended period of
 16 time.
 17 Q. What is an extended period of
 18 time?
 19 A. Months or years.
 20 Q. Any other definition that you
 21 have of habitual use?
 22 A. No.
 23 Q. Today, in response to the
 24 notice of deposition, you did bring the

Page 24

1 binder of materials; is that right?
 2 A. Yes.
 3 Q. The binder of materials, did
 4 you prepare that, or was it prepared for you?
 5 A. Well, I uploaded documents to a
 6 share file, and the plaintiffs' attorneys
 7 were kind enough to print those for me and
 8 assemble them in the binder.
 9 Q. In addition, you have brought
 10 with you a stack of eight or so additional
 11 references that you have on the table in
 12 front of you; is that right?
 13 A. Yes.
 14 Q. Are those materials that were
 15 cited either as references in your report or
 16 in the literature section of your report?
 17 A. I think they're all included in
 18 one or the other of those lists.
 19 Q. Your testimony under oath is
 20 that all of the additional materials you
 21 brought here today are referred to either in
 22 your reference list, which is -- begins at
 23 page 11 of your report, or your literature
 24 list, which we've marked as Exhibit 4 and is

Page 25

1 Exhibit B to your report; is that right?
 2 MS. O'DELL: Objection to the
 3 form.
 4 Go ahead.
 5 A. There are a couple of new
 6 articles here that were not available at the
 7 time that I submitted my report, and I
 8 believe the literature list was also created.
 9 BY MR. ZELLERS:
 10 Q. Were those new materials
 11 provided to you by plaintiffs' counsel or are
 12 those materials that you did some type of
 13 literature search and found?
 14 A. One of them was provided to me
 15 by plaintiffs' counsel, but I was aware that
 16 it was coming. And -- actually, two of them
 17 were provided by plaintiffs' counsel.
 18 Q. All right. The two additional
 19 documents that were provided to you by
 20 plaintiffs' counsel, can you show those to
 21 me?
 22 A. Okay. One is the Longo report.
 23 Q. We will mark as
 24 Deposition Exhibit 5 the Longo report dated

<p style="text-align: right;">Page 26</p> <p>1 January 15th of 2009 [sic]. 2 (Carson Deposition Exhibit 5 3 marked.) 4 A. The other is the recent 5 Fletcher, et al article. 6 (Carson Deposition Exhibit 6 7 marked.) 8 BY MR. ZELLERS: 9 Q. The Fletcher article dated 10 January 3rd of 2019 we'll mark as Exhibit 6. 11 This is an article from Reproductive 12 Sciences; is that right? 13 A. Yes. And I actually have a 14 third. 15 Q. All right. You have a third 16 article that was provided to you by 17 plaintiffs' counsel? 18 A. Yes. 19 (Carson Deposition Exhibit 7 20 marked.) 21 BY MR. ZELLERS: 22 Q. Let's mark that as 23 Deposition Exhibit 7. Can you tell us what 24 article that is?</p>	<p style="text-align: right;">Page 28</p> <p>1 Ph.D.; is that right? 2 A. Yes. 3 Q. What additional articles have 4 you brought here with you today separate and 5 apart from your binder of materials? 6 A. There's a copy of the IARC 7 monographs preamble. 8 Q. For what purpose did you bring 9 that article? 10 A. This discusses the general 11 process that IARC uses in approaching a 12 putative carcinogenic material. 13 Q. That has previously been marked 14 as Plaintiff Exhibit P-346 in another 15 proceeding; is that right? 16 A. I don't know. 17 Q. Well, the document we're 18 looking at has that exhibit sticker on it; is 19 that right? 20 A. It does. 21 Q. What else have you brought here 22 with you today? 23 A. This is an article from 24 The Lancet from 1952 titled Value of Modified</p>
<p style="text-align: right;">Page 27</p> <p>1 A. This is a meta-analysis. 2 It's -- the title is Systematic Review and 3 Meta-Analysis of the Association Between 4 Perineal Use of Talc and Risk of Ovarian 5 Cancer. The lead author is Mohamed Taher. 6 Q. The Taher paper we have marked 7 as Exhibit 7; is that right? 8 A. Yes. 9 Q. This is something that you were 10 provided by plaintiffs' counsel; is that 11 right? 12 A. Yes. 13 Q. Exhibit 6, Reproductive 14 Sciences, are you familiar with that journal? 15 A. I'm aware that it exists. 16 Q. Do you review that journal on a 17 regular basis as a part of your clinical and 18 research activities? 19 A. No, I don't. 20 Q. Is Reproductive Sciences a 21 peer-reviewed journal? 22 A. I believe it is. 23 Q. The Exhibit 6 has as a 24 corresponding author, Dr. Saed, S-A-E-D, a</p>	<p style="text-align: right;">Page 29</p> <p>1 Starch as a Substitute for Talc, and the 2 first author is J.D.P. Graham. 3 Q. Why did you bring that article? 4 A. This is an older article that 5 discusses the suitability of substituting 6 cornstarch materials for talc due to 7 perceived issues with talc. 8 Q. Is this an article that you had 9 cited previously, either in your references 10 or your list of literature? 11 A. I did not cite it in my report. 12 I don't know -- I don't recall if it's in the 13 literature list or not. 14 (Carson Deposition Exhibit 8 15 marked.) 16 BY MR. ZELLERS: 17 Q. Why did you decide to bring 18 that with you here today? 19 A. It is in the literature list. 20 I ran across it last night, and 21 I thought I might need to refer to it during 22 the deposition. 23 Q. What other documents or 24 materials have you brought other than your</p>

<p style="text-align: right;">Page 30</p> <p>1 binder of materials?</p> <p>2 A. I have here a copy of the</p> <p>3 recent Canadian position on the safety of</p> <p>4 talcum powder and its relationship to ovarian</p> <p>5 cancer.</p> <p>6 Q. When did you review that</p> <p>7 document?</p> <p>8 A. A couple weeks ago, I think.</p> <p>9 Q. Is that a document that you</p> <p>10 were provided by plaintiffs' counsel?</p> <p>11 A. It was.</p> <p>12 Q. Can I see the document, please?</p> <p>13 We'll mark the draft screening assessment</p> <p>14 from Health Canada dated December 18th of</p> <p>15 2018 as Exhibit 9.</p> <p>16 (Carson Deposition Exhibit 9</p> <p>17 marked.)</p> <p>18 BY MR. ZELLERS:</p> <p>19 Q. Any other documents?</p> <p>20 A. I have a copy of the letter</p> <p>21 from the FDA from April 1st, 2014 responding</p> <p>22 to positions -- petitions for labeling.</p> <p>23 Q. This is a letter that has a</p> <p>24 stamp on it on the first page, April 1st,</p>	<p style="text-align: right;">Page 32</p> <p>1 talcum powder and ovarian cancer, is</p> <p>2 something that you undertook when you were</p> <p>3 retained by plaintiffs' counsel and asked to</p> <p>4 address the question they gave to you?</p> <p>5 A. Yes, it is.</p> <p>6 Q. We will mark the article by</p> <p>7 Blount as Exhibit 11.</p> <p>8 (Carson Deposition Exhibit 11</p> <p>9 marked.)</p> <p>10 BY MR. ZELLERS:</p> <p>11 Q. And you have one more; is that</p> <p>12 right?</p> <p>13 A. Yes, one more, which is -- this</p> <p>14 is an article from the American Journal of</p> <p>15 Obstetrics and Gynecology from 1974 titled</p> <p>16 The Ovarian Mesothelioma. It's authored by</p> <p>17 Parmley and Woodruff.</p> <p>18 Q. We'll mark that as Exhibit 12.</p> <p>19 (Carson Deposition Exhibit 12</p> <p>20 marked.)</p> <p>21 BY MR. ZELLERS:</p> <p>22 Q. Exhibit 12, is this an article</p> <p>23 that was cited previously by you in either</p> <p>24 your references or your literature list?</p>
<p style="text-align: right;">Page 31</p> <p>1 2014, from -- or strike that -- to</p> <p>2 Dr. Epstein from the FDA; is that right?</p> <p>3 A. Yes.</p> <p>4 Q. Let's mark that as Exhibit 10.</p> <p>5 (Carson Deposition Exhibit 10</p> <p>6 marked.)</p> <p>7 BY MR. ZELLERS:</p> <p>8 Q. What else?</p> <p>9 A. I have an article authored by</p> <p>10 A.M. Blount which is titled Amphibole Content</p> <p>11 of Cosmetic and Pharmaceutical Talcs that was</p> <p>12 published in Environmental Health</p> <p>13 Perspectives in 1991.</p> <p>14 Q. Is that a journal that you</p> <p>15 review on a regular basis as part of either</p> <p>16 your clinical practice or your research</p> <p>17 activities?</p> <p>18 A. That one I do look at pretty</p> <p>19 much.</p> <p>20 Q. Is this an article you were</p> <p>21 aware of back in 1991?</p> <p>22 A. No. At least I don't recall.</p> <p>23 Q. Is it fair that your review of</p> <p>24 this literature, the literature relating to</p>	<p style="text-align: right;">Page 33</p> <p>1 A. Yes.</p> <p>2 Q. For what -- strike that.</p> <p>3 Is this a document that you</p> <p>4 chose to bring today or were you provided it</p> <p>5 by plaintiffs' counsel?</p> <p>6 A. This is another one I ran</p> <p>7 across last night and decided to bring along</p> <p>8 to the depo.</p> <p>9 Q. Same questions with respect to</p> <p>10 the Blount article, Exhibit 11: Is this an</p> <p>11 article you cite in your references or</p> <p>12 literature?</p> <p>13 A. In the literature, yes.</p> <p>14 Q. For what purpose have you</p> <p>15 brought this with you today?</p> <p>16 A. I thought I might want to refer</p> <p>17 to it in response to questions here.</p> <p>18 Q. Exhibit 10, the letter from the</p> <p>19 FDA to Dr. Epstein, April of 2014, for what</p> <p>20 purpose have you brought that here with you</p> <p>21 today?</p> <p>22 A. I thought I might want to refer</p> <p>23 to it in response to questioning.</p> <p>24 Q. The documents that you have</p>

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1 brought here with you today are documents
2 that you wanted to have available to try to
3 respond to the questions that I may ask you?
4 A. Yes.
5 Q. These documents you all
6 believe -- strike that.
7 The documents that you've
8 identified and you've brought with you --
9 have brought with you today, you believe
10 those are supportive of the opinions that you
11 are rendering in this matter; is that right?
12 A. Yes.
13 Q. The documents on your
14 literature list, what we have marked as
15 Exhibit 4, are those documents that were
16 provided to you by plaintiffs' counsel?
17 A. Some were.
18 Q. The documents on this list that
19 were not provided by plaintiffs' counsel, did
20 you find those through a literature search?
21 A. Yes.
22 Q. Are you able to distinguish for
23 us which documents on your literature list,
24 Exhibit 4, came from plaintiffs' counsel and

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1 which items on the literature list you came
2 up with?
3 A. To some extent.
4 Q. So if we went through item by
5 item, you believe you could distinguish
6 between what was provided to you by
7 plaintiffs and what you found on your own?
8 A. For some, but not all of them.
9 Q. Have you reviewed all of the
10 materials that are listed on your literature
11 list?
12 A. I have reviewed all of them,
13 yes.
14 Q. Have you reviewed all of the
15 materials that are on your reference list?
16 A. Yes.
17 Q. The materials on your reference
18 list, is it the same that some were provided
19 to you by plaintiffs' counsel and some you
20 found on your own?
21 A. I think there may be one or two
22 references that I didn't have before I saw
23 them in the share file that may have been
24 provided by plaintiffs' counsel, but I

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1 wouldn't be able to tell you for sure. I'm
2 sure I ran across these in my own literature
3 search.
4 Q. Deposition Exhibit 13, we will
5 mark the thumb drive that plaintiffs' counsel
6 has brought here today.
7 (Carson Deposition Exhibit 13
8 marked.)
9 BY MR. ZELLERS:
10 Q. Do you, Dr. Carson, have an
11 understanding of what's on the thumb drive
12 we've marked as Exhibit 13?
13 A. My understanding is this is
14 copies of the documents on the literature
15 list.
16 Q. When were you first retained by
17 anyone regarding the talc/ovarian cancer
18 litigation?
19 A. In October of 2018.
20 Q. Who contacted you?
21 A. I was contacted by an attorney
22 named Russ Abney.
23 Q. Who is Mr. Abney, if you know?
24 A. Mr. Abney is a lawyer who used

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1 to work in the Houston area and with whom I
2 had some dealings years ago; and since that
3 time he has become involved in this talc
4 litigation in some way, was aware of me as a
5 potential expert witness, and contacted me
6 regarding my interest and availability.
7 Q. What matters have you worked on
8 with Mr. Abney in the past?
9 A. I think it would have been back
10 in the 1990s, and I frankly don't recall what
11 cases we worked on, but there were one or
12 maybe two cases.
13 Q. When in October of 2018 were
14 you contacted by Mr. Abney?
15 MS. O'DELL: Object to the
16 form.
17 A. I believe it was either the
18 14th or 15th of October.
19 BY MR. ZELLERS:
20 Q. How do you remember with that
21 precision?
22 A. I have an e-mail that relates
23 to a phone call which was our initial
24 contact.

<p style="text-align: right;">Page 38</p> <p>1 Q. Mr. Abney at some point asked</p> <p>2 you to address the question that you told us</p> <p>3 before: Does the habitual use of talcum</p> <p>4 powder cause ovarian cancer?</p> <p>5 Is that right?</p> <p>6 MS. O'DELL: Object to the</p> <p>7 form.</p> <p>8 A. Well, he talked to me generally</p> <p>9 about the case that was proceeding, and I</p> <p>10 discussed with him what my understanding of</p> <p>11 those things was and what the kind of</p> <p>12 opinions I would be able to render would be.</p> <p>13 And he suggested that he set up a meeting</p> <p>14 between me and members of plaintiffs'</p> <p>15 counsel.</p> <p>16 BY MR. ZELLERS:</p> <p>17 Q. When Mr. Abney called you</p> <p>18 middle of October of 2018, talcum powder and</p> <p>19 any relationship or association that it may</p> <p>20 have to ovarian cancer had not been a focus</p> <p>21 of your research or study; is that right?</p> <p>22 A. That's right.</p> <p>23 Q. It had not been a part of your</p> <p>24 clinical practice, right?</p>	<p style="text-align: right;">Page 40</p> <p>1 doing a review? What does that mean?</p> <p>2 A. Well, I felt that I was hired</p> <p>3 as a witness at that point and that's when I</p> <p>4 would begin my billable hours on this case.</p> <p>5 Q. When was that? Sometime in</p> <p>6 later October of -- late October of 2018?</p> <p>7 A. It was within a few days after</p> <p>8 our first meeting, still in October.</p> <p>9 Q. What did you do to answer the</p> <p>10 question? What was your methodology?</p> <p>11 A. Well, initially I decided to do</p> <p>12 a general literature search on the question</p> <p>13 to see what research had been performed, what</p> <p>14 reports had been written, what the quality of</p> <p>15 that research was.</p> <p>16 Q. When did you start that?</p> <p>17 A. Immediately. I was curious.</p> <p>18 I began to assemble the</p> <p>19 available literature and review it on a</p> <p>20 piecemeal basis through the subsequent time</p> <p>21 period; the next couple of weeks I reviewed a</p> <p>22 lot of it.</p> <p>23 Q. What did you search for when</p> <p>24 you did this general literature search?</p>
<p style="text-align: right;">Page 39</p> <p>1 A. That's correct.</p> <p>2 Q. When did you meet with the</p> <p>3 larger group of plaintiffs' counsel?</p> <p>4 A. I believe we had a telephone</p> <p>5 meeting on the 16th of October. I'm not</p> <p>6 sure. I have to --</p> <p>7 Q. That's -- right now I just want</p> <p>8 estimates.</p> <p>9 A. Okay.</p> <p>10 Q. And so I don't -- as long as</p> <p>11 you're reasonably comfortable that it was in</p> <p>12 that time frame.</p> <p>13 A. It was mid October.</p> <p>14 Q. That's fine.</p> <p>15 When were you asked the</p> <p>16 question that the plaintiffs' lawyers wanted</p> <p>17 you to try to answer in this litigation?</p> <p>18 A. Well, after the meeting we</p> <p>19 parted ways and then made contact again a few</p> <p>20 days later, and I was told that they were</p> <p>21 interested in me going ahead and doing a</p> <p>22 review and starting to establish opinions.</p> <p>23 Q. What do you mean by they</p> <p>24 authorized you or were comfortable with you</p>	<p style="text-align: right;">Page 41</p> <p>1 A. I searched under various search</p> <p>2 terms, including "talc," including "ovarian</p> <p>3 cancer," the relationship between the two.</p> <p>4 As I became more familiar with the</p> <p>5 literature, I expanded that search into other</p> <p>6 topics.</p> <p>7 As I became -- I was already</p> <p>8 aware of issues related to the inclusion of</p> <p>9 asbestos in talc deposits, and so I expanded</p> <p>10 my search into that part of the literature</p> <p>11 that relates to asbestos in talc or asbestos</p> <p>12 in ovarian cancer.</p> <p>13 As I felt my opinions would</p> <p>14 need to extend into cancer and carcinogenesis</p> <p>15 in general, I did some search into ovarian</p> <p>16 cancer specifically and general</p> <p>17 carcinogenesis to see what the current state</p> <p>18 of the art was regarding that in the</p> <p>19 literature.</p> <p>20 I looked at some issues of</p> <p>21 mining practices.</p> <p>22 I looked at the Johnson &</p> <p>23 Johnson website. There's a webpage regarding</p> <p>24 talc and ovarian cancer that I looked at.</p>

<p style="text-align: right;">Page 42</p> <p>1 I looked through old notes and 2 lecture files that I had for information that 3 I've used or accessed previously in my 4 professional capacity for information that 5 was pertinent. 6 Just a very dendritic kind of 7 extensive search. 8 Q. You reviewed these materials 9 that you have told us about and then did you 10 prepare your report? 11 A. At that point I -- well, the 12 literature review took several stages. 13 Typically when you perform a review like 14 this, you end up with a -- I do a very 15 general sort of approach to a review, so I 16 get much more than will be pertinent to my 17 review eventually. 18 I find that a valuable approach 19 because it allows me to find things I 20 wouldn't otherwise find or look for or know 21 to look for. 22 And then I'm able to cull 23 through that information and discard pieces 24 of the search materials that are not relevant</p>	<p style="text-align: right;">Page 44</p> <p>1 review of draft versions of my report and 2 comments, in particular -- 3 Q. Don't tell me about the 4 comments. 5 A. Okay. 6 Q. I don't want to know what the 7 lawyers may have told you. 8 Did the comments come from the 9 lawyers for plaintiffs or did they come from 10 other people? 11 A. They came from the lawyers. 12 They also came from a few of my colleagues. 13 Q. Did you share your report with 14 some of your colleagues? 15 A. I let a few people read it and 16 I talked to them about it. 17 Q. Are the opinions your opinions? 18 A. Yes, they are. 19 Q. Have you told me, you know, 20 generally what you have done to formulate 21 your opinions in this matter? 22 A. Yes, I think so. 23 Q. You did all of this over a 24 30-day period; is that right?</p>
<p style="text-align: right;">Page 43</p> <p>1 or interesting to me and then refine my 2 search and redo it, extending it into 3 different areas that have now become 4 pertinent in my opinion, until I satisfy 5 myself that I have pretty much covered the 6 waterfront so to speak in terms of a 7 literature review. 8 Q. You did your literature review. 9 You reviewed the Johnson & Johnson website 10 and the other materials that you have told us 11 about. 12 Did you then formulate your 13 opinions and set them down in your report 14 which we marked as Exhibit 2? 15 A. I did. I began writing as I 16 reviewed the literature and continued to take 17 notes which, through a continuous editing 18 process, eventually became my report. 19 Q. Did you prepare your report? 20 A. I did. 21 Q. Did anyone assist you in the 22 preparation of your report? 23 A. No one assisted me in the 24 preparation of my report. I did receive</p>	<p style="text-align: right;">Page 45</p> <p>1 A. Yes. 2 Q. All right. You have no 3 invoices, correct? 4 A. That's correct. 5 Q. Is it typical that you'll work 6 on a matter for some number of months and not 7 generate any invoices? 8 A. Yes. 9 Q. You are billing your time at 10 what rate? 11 A. \$450 per hour. 12 Q. Can you estimate for us the 13 number of hours that you have spent doing 14 your literature review, formulating your 15 opinions, and writing your report? 16 A. There's still some tallying I 17 need to do from my calendar, but it's between 18 150 and 180 hours. 19 Q. Does that include your meetings 20 and communications with plaintiffs' counsel? 21 A. Yes, that's up until today. 22 Q. Other than meeting with 23 Mr. Abney or talking with Mr. Abney -- did 24 you ever meet with Mr. Abney face-to-face?</p>

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1 A. No.
 2 Q. What other plaintiff lawyers
 3 have you met with or talked with as part of
 4 your formulating your opinions and doing your
 5 literature review?
 6 A. We've had a number of
 7 conference calls where there were several of
 8 these attorneys' colleagues on the line, but
 9 in terms of in-person meetings, those have
 10 been with Ms. O'Dell and Ms. Thompson,
 11 Dr. Thompson.
 12 Q. How many meetings have you had
 13 with Ms. O'Dell?
 14 A. Three.
 15 Q. How many meetings have you had
 16 with Dr. Thompson?
 17 A. Three.
 18 Q. Did you know Dr. Thompson
 19 before you were retained in this matter?
 20 A. I did not.
 21 Q. Any other plaintiff lawyers in
 22 this litigation that you are aware of --
 23 strike that.
 24 Any other plaintiff lawyers in

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1 this matter that you've had communications
 2 with other than what you have told us?
 3 A. No.
 4 Q. Do you have any social
 5 relationship with any of the plaintiffs'
 6 counsel?
 7 A. No.
 8 Q. Your relationship with
 9 Dr. Thompson is just the three meetings that
 10 you have been involved in with her?
 11 A. Well, we've exchanged e-mail
 12 communications, but other than that, no.
 13 Q. Have you met with or talked
 14 with any other expert witness for plaintiffs?
 15 A. No, I have not.
 16 Q. Do you know who Thomas Dydek
 17 is?
 18 A. Yes.
 19 Q. Who is Thomas Dydek?
 20 A. He is a toxicologist.
 21 Q. Where does he practice?
 22 A. I don't recall.
 23 Q. Have you had any discussions
 24 with Dr. Dydek?

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1 A. I have not had any discussions
 2 with Dr. Dydek. We may have met previously,
 3 but I don't recall.
 4 Q. Any previous meeting with
 5 Dr. Dydek, did it relate to this litigation?
 6 A. No.
 7 Q. Did it relate to expert witness
 8 work that you were doing?
 9 A. No.
 10 Q. Do you know what the
 11 relationship is, if any, between Dr. Thompson
 12 and Dr. Dydek?
 13 A. I don't know of any
 14 relationship outside of his work as an expert
 15 witness in related litigation.
 16 Q. Dr. Crowley, do you know
 17 Michael Crowley?
 18 A. I know of Dr. Crowley.
 19 Q. Did you know of Dr. Crowley
 20 before you were retained in the talcum powder
 21 litigation?
 22 A. No.
 23 Q. Have you ever met with
 24 Dr. Crowley?

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1 A. I have not.
 2 Q. Ever talked with Dr. Crowley?
 3 A. I have not.
 4 Q. You reviewed his report as part
 5 of your review in this matter; is that right?
 6 A. That's correct.
 7 Q. Do you know who any of the
 8 other experts are in this litigation for
 9 plaintiffs?
 10 A. Well, I know there are a number
 11 of people who have generated reports that I
 12 have also reviewed.
 13 Q. What reports have you reviewed
 14 from plaintiffs' other experts?
 15 A. Well, I've reviewed several
 16 reports from Dr. Longo, who's done work on
 17 the presence of asbestos in talc products and
 18 related things. I think he's the only other
 19 expert that I'm aware of at this point.
 20 Q. Well, you're aware of
 21 Dr. Crowley?
 22 A. Well, Dr. Crowley, Dr. Longo,
 23 and Dr. Dydek that you mentioned before.
 24 Q. Have you reviewed any reports

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1 or transcripts from Dr. Dydek?
 2 A. Yes, I reviewed an expert
 3 report that he provided before I got involved
 4 in this case.
 5 Q. Did you review that report
 6 before you prepared your report?
 7 A. Yes.
 8 Q. Did you review Dr. Crowley's
 9 report before you prepared your report?
 10 A. Yes.
 11 Q. And you reviewed Dr. Longo's
 12 report before you prepared your report; is
 13 that right?
 14 A. I've reviewed one report.
 15 There was another one that became available
 16 after.
 17 Q. The second report is what you
 18 brought here with you today and we marked as
 19 Exhibit 5; is that right?
 20 A. Yes.
 21 Q. Any other plaintiff experts
 22 that you're aware of?
 23 A. Not that I can think of, no.
 24 Q. Any other reports from

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1 plaintiffs' experts that you have reviewed?
 2 A. Well, there's a -- there is an
 3 article that's been submitted for publication
 4 which I consider a piece of the scientific
 5 literature. You mentioned Dr. Saed earlier,
 6 and I know that he has a relationship with
 7 this case as well.
 8 Q. What is his relationship with
 9 this case, Dr. Saed?
 10 A. He's provided some work at the
 11 request of the attorneys here.
 12 Q. Have you reviewed that work?
 13 A. That's the subject of several
 14 articles he's published previously, he and
 15 his colleagues, as well as the additional one
 16 that I brought today.
 17 Q. Other than the articles that
 18 you have listed on your reference and
 19 literature list and the Saed article that you
 20 brought with you today, are you aware of any
 21 other work that Dr. Saed has done in this
 22 matter?
 23 A. No.
 24 Q. Any other plaintiff experts

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1 that you're aware of?
 2 A. No.
 3 Q. Are you aware of any of the
 4 experts for defendants in the talcum powder
 5 litigation?
 6 A. No.
 7 Q. Have you reviewed any reports
 8 from any of the experts in the talcum powder
 9 litigation?
 10 A. I have not.
 11 Q. Have you reviewed any of the
 12 transcripts of defense experts in the talcum
 13 powder litigation?
 14 A. I've reviewed some deposition
 15 transcripts of various witnesses.
 16 Q. Those witnesses are all listed
 17 in either your references or your literature;
 18 is that right?
 19 A. Yes.
 20 Q. Did you review the entire
 21 transcripts of the witnesses that you've
 22 identified?
 23 A. I think for the most part I
 24 would say yes.

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1 Q. Did you review the exhibits to
 2 those depositions?
 3 A. Yes. If they were provided to
 4 me, I did, yes.
 5 Q. Did you believe that it was
 6 your job to do an independent assessment as
 7 to whether or not the habitual use of talcum
 8 powder causes or can cause ovarian cancer?
 9 MS. O'DELL: Object to the
 10 form.
 11 A. Could you repeat the question,
 12 please.
 13 BY MR. ZELLERS:
 14 Q. Sure.
 15 Plaintiffs asked you to --
 16 strike that.
 17 Plaintiffs' counsel asked you
 18 to answer that question; is that right?
 19 A. Yes.
 20 Q. You understood that they were
 21 looking to develop an association or a causal
 22 relationship between the habitual use of
 23 talcum powder and ovarian cancer, correct?
 24 A. Yes.

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1 MS. O'DELL: Object to the
 2 form.
 3 Excuse me, I'm sorry,
 4 gentlemen. Give me just one second to
 5 object if I need to.
 6 THE WITNESS: Sure.
 7 MS. O'DELL: Thank you.
 8 BY MR. ZELLERS:
 9 Q. Did you consider the literature
 10 and the sources that refuted that association
 11 or causal relationship?
 12 A. I tried to consider all the
 13 available literature.
 14 Q. When you wrote your report
 15 setting forth your opinions, did you set
 16 forth the sources that refuted the
 17 propositions you were making?
 18 A. I cited several sources that on
 19 the surface might seem to refute my opinions.
 20 Q. And you believe that is
 21 contained in your report which we marked as
 22 Exhibit 2; is that right?
 23 A. Yes.
 24 Q. Have you been involved in any

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1 other talcum powder litigation other than
 2 this talc MDL matter that Mr. Abney talked to
 3 you about?
 4 A. No, I haven't.
 5 Q. In the 30 to 35 occasions that
 6 you've testified in the past, have any of
 7 those been on issues relating to talcum
 8 powder and any association between talcum
 9 powder and ovarian cancer?
 10 A. No.
 11 Q. You are not an expert in
 12 asbestos, correct?
 13 MS. O'DELL: Object to the
 14 form.
 15 A. I'm an occupational medicine
 16 physician, and I have a significant amount of
 17 awareness and training regarding asbestos as
 18 it relates to occupational exposures and
 19 general environmental exposures, but I don't
 20 consider myself an asbestos expert.
 21 BY MR. ZELLERS:
 22 Q. What percentage of your time do
 23 you spend working as a consultant? And I'm
 24 talking about your professional time.

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1 A. Probably 5%.
 2 Q. What percent of your income
 3 comes from the work that you do as a
 4 consultant?
 5 A. Of course it varies quite a bit
 6 from moment to moment, but it would be less
 7 than 10%.
 8 Q. Have you ever testified at
 9 trial?
 10 A. Yes.
 11 Q. On how many occasions?
 12 A. Probably ten.
 13 Q. The 30 to 35 depositions that
 14 you've given previously, those have been in
 15 the context of you providing litigation
 16 consulting services; is that right?
 17 A. In terms of expert testimony,
 18 yes.
 19 Q. The trial appearances that
 20 you've made, are those also in your capacity
 21 as an expert witness?
 22 A. Yes.
 23 Q. Have you been involved in other
 24 litigations?

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1 A. Yes.
 2 Q. What other litigations have you
 3 been involved in as an expert?
 4 A. Well, I've been asked to
 5 provide opinions and testify in a number of
 6 cases, most of which involved personal injury
 7 in the occupational setting or environmental
 8 exposures.
 9 Q. Has the majority of your expert
 10 work in the occupational setting and for
 11 environmental exposures been on behalf of
 12 plaintiffs?
 13 A. No, it's been split about
 14 50/50, plaintiff and defense.
 15 Q. Have you ever been retained in
 16 a case involving cosmetic products?
 17 A. No.
 18 Q. Your curriculum vitae that we
 19 marked as Exhibit 3, is it correct and up to
 20 date?
 21 A. It was up to date at the time
 22 of submission of my report in the end of
 23 2018.
 24 Q. What additions need to be made

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1 or corrections need to be made to your CV,
 2 Exhibit 3, to bring it up to date?
 3 A. Well, I've terminated a
 4 relationship with the University of Texas
 5 Medical Branch in Galveston where I was
 6 their -- the medical director of their
 7 Employee Health Services Clinic. I continue
 8 to be -- serve as an assistant clinical
 9 professor of preventive medicine and family
 10 medicine at that institution.
 11 I have terminated my
 12 relationship with the Enbridge Corporation as
 13 their medical director.
 14 The Spectra Energy entry, which
 15 is about the seventh on the list of
 16 professional activities, is also terminated
 17 as that was a company that was merged and
 18 became Enbridge.
 19 Q. Any other corrections or
 20 updates to your curriculum vitae that we've
 21 marked as Exhibit 3?
 22 A. No.
 23 Q. Why are you no longer serving
 24 as medical director, Employee Health Services

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1 with the University of Texas?
 2 MS. O'DELL: Objection to form.
 3 A. That was a contract that I had
 4 through the University of Texas Houston
 5 College of Nursing that provided those
 6 services to UTMB, and UTMB decided to make a
 7 change and go with another contractor.
 8 BY MR. ZELLERS:
 9 Q. Why are you no longer serving
 10 as medical director for Spectra Energy
 11 Corporation and Enbridge Corporation?
 12 A. Well, Spectra Energy no longer
 13 exists; it became Enbridge Corporation. And
 14 in October of 2018, I determined that I did
 15 not -- I no longer had sufficient time to
 16 provide that service.
 17 Q. Your undergraduate degree was
 18 in biologic sciences with a concentration in
 19 engineering; is that right?
 20 A. Yes.
 21 Q. You received a Ph.D. in
 22 toxicology; is that right?
 23 A. Yes.
 24 Q. And then later an M.D. degree;

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1 is that right?
 2 A. Yes.
 3 Q. What percentage of your time is
 4 spent in the clinical practice of medicine?
 5 A. Currently I see patients
 6 one-half day a week and work as a supervisor
 7 of the occupational medicine residents for
 8 additional time during the week, so clinical
 9 activities would be about probably 12 hours a
 10 week.
 11 Q. Do you see or treat women for
 12 gynecologic cancer?
 13 A. I do not.
 14 Q. You have never worked for a
 15 company that manufactures cosmetic products,
 16 correct?
 17 A. That's correct.
 18 Q. You're not a gynecologist or an
 19 oncologist, correct?
 20 A. That's correct.
 21 Q. You're not a cancer biologist?
 22 MS. O'DELL: Object to the
 23 form.
 24 A. That's correct.

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1 BY MR. ZELLERS:
 2 Q. You are not a geologist,
 3 mineralogist or microscopist?
 4 A. That's correct.
 5 Q. You're not an epidemiologist?
 6 A. Well, I may be considered an
 7 epidemiologist simply by my appointment as an
 8 associate professor in the Department of
 9 Epidemiology at the School of Public Health
 10 here in Houston.
 11 Q. Do you have any professional
 12 education in the field -- well, strike that.
 13 Have you ever published or
 14 conducted a meta-analysis?
 15 A. I have conducted meta-analyses.
 16 I've not published them.
 17 Q. You did not do any type of
 18 fellowship in epidemiology, correct?
 19 A. That's correct.
 20 Q. You're not board certified in
 21 epidemiology; is that right?
 22 A. I don't believe there is a
 23 board certification in epidemiology.
 24 Q. You're not a biostatistician or

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1 a pulmonologist?
 2 A. That's correct.
 3 Q. You're not a material
 4 scientist?
 5 A. That's correct.
 6 Q. Nor are you a pathologist?
 7 A. Correct.
 8 Q. You've never been involved in
 9 any pathological exam or research relating to
 10 ovarian cancer; is that right?
 11 MS. O'DELL: Object to the
 12 form.
 13 A. I'm not sure exactly what you
 14 mean by your question.
 15 BY MR. ZELLERS:
 16 Q. Sure. Let me withdraw that.
 17 You've never been involved in
 18 terms of the research relating to ovarian
 19 cancer, correct?
 20 A. Not specifically, no.
 21 Q. You've never authored any
 22 literature or publications relating to talcum
 23 powder?
 24 A. No.

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1 Q. Or relating to ovarian cancer,
 2 correct?
 3 A. No.
 4 Q. Okay. What journals -- well,
 5 strike that.
 6 You have never published on
 7 fragrance chemicals; is that right?
 8 MS. O'DELL: Object to the
 9 form.
 10 A. That's correct.
 11 BY MR. ZELLERS:
 12 Q. Never done any research on
 13 fragrance chemicals, correct?
 14 A. I've done some work with
 15 fragrance chemicals and health effects that
 16 are associated with them, but I have not -- I
 17 would not classify that as research or
 18 publication.
 19 Q. You had no opinions regarding
 20 talcum powder or any of its constituent
 21 components before getting involved in this
 22 litigation; is that right?
 23 MS. O'DELL: Object to the
 24 form.

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1 A. I think I had opinions about
 2 talcum powder and its constituents, but if
 3 you could be more specific, I might be able
 4 to give you a more specific answer.
 5 BY MR. ZELLERS:
 6 Q. Did you ever, before getting
 7 involved in this litigation in October of
 8 2018, do research -- strike that.
 9 You've never published on
 10 talcum powder, correct?
 11 A. That's correct.
 12 Q. You have never published on the
 13 constituent components of talcum powder,
 14 correct?
 15 A. That may not be the case. I've
 16 done work in some other minerals which have
 17 resulted in publications, for example,
 18 vermiculite, which have touched on the issues
 19 of asbestos, association with talc,
 20 association with other minerals, but never
 21 specifically regarding talc.
 22 Q. Are those publications on your
 23 CV?
 24 A. They are.

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1 Q. That we marked as Exhibit 3?
 2 A. Yes.
 3 Q. Okay. Have you ever
 4 communicated with the FDA regarding talcum
 5 powder?
 6 A. I've not.
 7 Q. Have you ever communicated with
 8 Health Canada regarding talcum powder?
 9 A. No.
 10 Q. When did you first start
 11 preparing your report which we've marked as
 12 Exhibit 2?
 13 A. Well, I began a literature
 14 review immediately after talking to
 15 Mr. Abney.
 16 Q. My question, I guess, is: When
 17 did you start writing your report?
 18 A. Well, technically I started
 19 writing my report after I was retained by
 20 plaintiffs' counsel.
 21 Q. Late October, early
 22 November 2018?
 23 MS. O'DELL: Object to the
 24 form, misstates his prior testimony.

<p style="text-align: right;">Page 66</p> <p>1 A. In October of 2018.</p> <p>2 BY MR. ZELLERS:</p> <p>3 Q. Have you reviewed any of the</p> <p>4 deposition transcripts of any of the experts</p> <p>5 that have been deposed in this litigation?</p> <p>6 A. Yes.</p> <p>7 Q. What deposition transcripts of</p> <p>8 experts have you reviewed?</p> <p>9 A. Oh, of experts? No, I have not</p> <p>10 reviewed -- well, I've reviewed -- I've</p> <p>11 reviewed expert depositions, but I don't know</p> <p>12 what case they were deposed in, but it</p> <p>13 relates to talcum powder and ovarian cancer</p> <p>14 issue.</p> <p>15 Q. What expert depositions have</p> <p>16 you reviewed?</p> <p>17 A. They're all cited in the</p> <p>18 literature exhibit.</p> <p>19 Q. All of the deposition</p> <p>20 transcripts that you've reviewed are cited in</p> <p>21 Exhibit 4?</p> <p>22 A. I think any of the transcripts</p> <p>23 that I review are -- reviewed are probably</p> <p>24 included in here.</p>	<p style="text-align: right;">Page 68</p> <p>1 and bolts of what goes on legally in this</p> <p>2 case. I know there are multiple lawsuits,</p> <p>3 and I'm not sure which ones those -- these</p> <p>4 are pertinent to.</p> <p>5 BY MR. ZELLERS:</p> <p>6 Q. My question is a little</p> <p>7 different and I hope pretty simple: In</p> <p>8 addition to the depositions, transcripts and</p> <p>9 reports that you have listed on pages 27 and</p> <p>10 28 of Exhibit 4, your literature list, are</p> <p>11 there any additional depositions or</p> <p>12 transcripts that you've reviewed?</p> <p>13 A. Pardon me for a moment while I</p> <p>14 review this.</p> <p>15 (Document review.)</p> <p>16 A. No, I'm not aware that there</p> <p>17 are.</p> <p>18 BY MR. ZELLERS:</p> <p>19 Q. Your testimony earlier was that</p> <p>20 you have reviewed each of those depositions</p> <p>21 in their entirety; is that right?</p> <p>22 A. Yes.</p> <p>23 Q. You have also reviewed the</p> <p>24 exhibits to those depositions; is that right?</p>
<p style="text-align: right;">Page 67</p> <p>1 Q. Are you aware of reviewing any</p> <p>2 transcripts that you did not include in your</p> <p>3 literature statement?</p> <p>4 A. I'm not aware, but I can't tell</p> <p>5 you as I'm sitting here right now whether all</p> <p>6 of those are included in this literature</p> <p>7 statement or not.</p> <p>8 Q. You -- looking at page --</p> <p>9 MS. O'DELL: I'm sorry. Go</p> <p>10 ahead.</p> <p>11 BY MR. ZELLERS:</p> <p>12 Q. Are there any that you believe</p> <p>13 you have reviewed that are not included in</p> <p>14 the literature statement?</p> <p>15 A. Well, let me just see here.</p> <p>16 There are --</p> <p>17 MS. O'DELL: I think they're at</p> <p>18 the end, Dr. Carson.</p> <p>19 THE WITNESS: At the very end.</p> <p>20 A. Beginning on page 27 is a list</p> <p>21 of the depositions, transcripts and reports</p> <p>22 that I've reviewed, which include some of the</p> <p>23 expert witnesses, but again, I would have to</p> <p>24 say I'm -- I'm sort of unaware of the nuts</p>	<p style="text-align: right;">Page 69</p> <p>1 A. If they were made available to</p> <p>2 me, I've looked at all those exhibits as</p> <p>3 well.</p> <p>4 Q. On page 27 of Exhibit 4, who is</p> <p>5 Annie Yessaian?</p> <p>6 A. On page 24?</p> <p>7 Q. Strike that. I'm sorry. On</p> <p>8 page 27 of Exhibit 4 --</p> <p>9 A. I see.</p> <p>10 Q. -- at the bottom, who is Annie</p> <p>11 Yessaian?</p> <p>12 A. I don't recall.</p> <p>13 Q. You reviewed her entire</p> <p>14 transcript and you don't recall who she is?</p> <p>15 A. I don't.</p> <p>16 Q. Well, go to the next page. Who</p> <p>17 is Pat Downey?</p> <p>18 A. I believe Pat Downey is an</p> <p>19 operative of the Imerys company.</p> <p>20 Q. Do you know what Mr. Downey's</p> <p>21 position is?</p> <p>22 A. It's a supervisory position</p> <p>23 regarding -- regarding quality of the talc</p> <p>24 product.</p>

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1 Q. Who is John Hopkins?
 2 A. John Hopkins is an official, I
 3 believe, of -- I'm not sure -- of Johnson &
 4 Johnson, I believe, who has some oversight of
 5 talc quality as well.
 6 Q. Susan Nicholson, who is she?
 7 A. I don't recall.
 8 Q. Who is Julie Pier?
 9 A. Julie Pier is another scientist
 10 who works for Imerys, who is responsible for
 11 testing and quality.
 12 Q. In your clinical and academic
 13 practice, do you typically rely upon
 14 depositions of company witnesses or experts?
 15 MS. O'DELL: Object to the
 16 form.
 17 A. If there's pertinent
 18 information in there that leads me to other
 19 areas or helps me formulate my opinions, then
 20 yes.
 21 BY MR. ZELLERS:
 22 Q. In the papers and publications
 23 that you have identified in your curriculum
 24 vitae, Exhibit 3, do you ever recall citing

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1 to company witness deposition testimony?
 2 A. I don't typically cite
 3 deposition testimonies in published papers.
 4 Q. You cite to various company
 5 documents. This is on pages 29 to 30 of
 6 Exhibit 4, your list of literature; is that
 7 right?
 8 A. Yes.
 9 Q. Did you rely on these documents
 10 in formulating your opinions?
 11 A. Yes.
 12 Q. Were these documents selected
 13 for you by plaintiffs' counsel?
 14 A. Yes, they were.
 15 Q. Are you able to identify what
 16 each of the documents are?
 17 MS. O'DELL: Based on the Bates
 18 number?
 19 MR. ZELLERS: Based on the
 20 Bates numbers.
 21 A. No, I am not. I would have to
 22 look at each individual document to refresh
 23 my memory as to what it contains.
 24 ///

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1 BY MR. ZELLERS:
 2 Q. Once you looked at these
 3 documents, the Imerys documents and the
 4 documents produced by the Johnson & Johnson
 5 companies, did you ask plaintiffs' counsel
 6 for any additional documents?
 7 A. I did not. My understanding is
 8 that most of these are reports, testing
 9 reports, and most of them are positive
 10 results regarding the presence of asbestos or
 11 fibers in the product. And I know that there
 12 were many others that may not have shown
 13 positive results that I did not look at.
 14 Q. Did you ask the plaintiff
 15 attorneys to show you or provide you with the
 16 testing documentation that showed an absence
 17 of asbestos or asbestos fibers in the talcum
 18 powder?
 19 A. Regarding the test results that
 20 are equivalent to these that were negative,
 21 no, I did not request those.
 22 Q. Did you review documents
 23 relating to any fragrance chemicals that are
 24 contained in or that you believe are

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1 contained in the talcum powder?
 2 A. Yes. I did review some lists
 3 and, of course, Dr. Crowley's report.
 4 Q. Do you have any idea or
 5 understanding as to the amount or amounts of
 6 the fragrance chemicals that are contained in
 7 the talcum powder in either the Johnson &
 8 Johnson Consumer company talcum powder that's
 9 involved in this litigation?
 10 MS. O'DELL: Object to the
 11 form.
 12 MR. ZELLERS: Let me withdraw
 13 that.
 14 BY MR. ZELLERS:
 15 Q. Do you know or have any
 16 understanding as to the amounts of fragrance
 17 chemicals that are in the talcum powder?
 18 A. I do not have the specific
 19 formulation or quantities of those substances
 20 that contributed to the products.
 21 Q. Do --
 22 MS. O'DELL: Excuse me.
 23 MR. ZELLERS: Ms. O'Dell,
 24 please, I'm going to let the doctor

<p style="text-align: right;">Page 74</p> <p>1 finish.</p> <p>2 MS. O'DELL: In that instance,</p> <p>3 I don't know that he was, and so if he</p> <p>4 was, my apologies.</p> <p>5 MR. ZELLERS: It's okay.</p> <p>6 MS. O'DELL: I've been on my</p> <p>7 best behavior today, as you know,</p> <p>8 so -- but I don't want the witness to</p> <p>9 feel as if they're being cut off, and</p> <p>10 because Dr. Carson is a very polite</p> <p>11 gentlemen, he would let you interrupt</p> <p>12 him.</p> <p>13 MR. ZELLERS: Of course.</p> <p>14 MS. O'DELL: And I don't think</p> <p>15 that's fair.</p> <p>16 So, Dr. Carson, if you're</p> <p>17 finished, great. If you're not, you</p> <p>18 may continue.</p> <p>19 A. Well, I was going to say that</p> <p>20 my opinion is that there are very small</p> <p>21 quantities of those substances that</p> <p>22 contribute to the fragrance component.</p> <p>23 BY MR. ZELLERS:</p> <p>24 Q. Do you know how those</p>	<p style="text-align: right;">Page 76</p> <p>1 understanding of business practices and these</p> <p>2 types of industries, I've reviewed an</p> <p>3 extremely small percentage of those.</p> <p>4 Q. Is it your practice in your</p> <p>5 academic work or your clinical research work</p> <p>6 to rely on internal company documents?</p> <p>7 A. Yes, it is.</p> <p>8 Q. Do you rely on internal company</p> <p>9 documents when you publish papers?</p> <p>10 A. In some cases.</p> <p>11 Q. Can you tell me in what cases</p> <p>12 or instances you have relied on internal</p> <p>13 company documents in your publications?</p> <p>14 A. Well, for example, I did -- I</p> <p>15 was involved in some research work in</p> <p>16 conjunction with NIOSH at the O.M. Scott</p> <p>17 Company at Marysville, Ohio, where we did</p> <p>18 a -- we performed a research in the company</p> <p>19 and relied on some internal documents in</p> <p>20 terms of gauging concentrations, industrial</p> <p>21 hygiene records and so forth, in order to</p> <p>22 draw conclusions that were pertinent to those</p> <p>23 publications.</p> <p>24 Q. Was that data or were those</p>
<p style="text-align: right;">Page 75</p> <p>1 quantities of fragrance chemicals may have</p> <p>2 changed over the years?</p> <p>3 A. My understanding is they have</p> <p>4 not changed dramatically, but there have been</p> <p>5 certain substitutions over time.</p> <p>6 Q. Do you agree that to the extent</p> <p>7 that you have reviewed internal documents,</p> <p>8 either of Imerys or from Johnson & Johnson</p> <p>9 companies, that you have only reviewed the</p> <p>10 documents that were hand-selected by the</p> <p>11 plaintiff lawyers for you to review?</p> <p>12 MS. O'DELL: Object to the</p> <p>13 form.</p> <p>14 A. I agree that the only documents</p> <p>15 that I've reviewed regarding the internal</p> <p>16 products of Johnson & Johnson or Imerys are</p> <p>17 the ones that were provided by the</p> <p>18 plaintiffs' attorneys.</p> <p>19 BY MR. ZELLERS:</p> <p>20 Q. Do you know what percentage of</p> <p>21 the documents that have been produced in this</p> <p>22 litigation by the Johnson & Johnson companies</p> <p>23 and by Imerys you have reviewed?</p> <p>24 A. Well, based on my general</p>	<p style="text-align: right;">Page 77</p> <p>1 internal communications that you relied on?</p> <p>2 A. They were both.</p> <p>3 Q. What is the publication on your</p> <p>4 CV where you relied on those materials?</p> <p>5 A. Well, let me see here. I think</p> <p>6 the first author -- looking back here -- the</p> <p>7 first author would be Jim Lockey.</p> <p>8 Q. Looking at page 6?</p> <p>9 A. It's on page 6, and the --</p> <p>10 there are two publications there. One is</p> <p>11 Pulmonary Changes After Exposure to</p> <p>12 Vermiculite Contaminated With Fibrous</p> <p>13 Tremolite that appeared in the American</p> <p>14 Review of Respiratory Disease in 1984.</p> <p>15 There's another publication</p> <p>16 which is a book chapter called Pulmonary</p> <p>17 Hazards From Vermiculite that appeared in a</p> <p>18 book titled Health Issues Related to Metal</p> <p>19 and Nonmetallic Mining.</p> <p>20 Q. Do you agree that when you have</p> <p>21 been provided only a small subset of the</p> <p>22 documents of a company relating to a</p> <p>23 particular product, that those documents can</p> <p>24 potentially be misleading?</p>

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1 MS. O'DELL: Object to the
 2 form.
 3 A. I don't agree that that's the
 4 case because I am capable of understanding
 5 that it's a subset of available information,
 6 and I can make a reliable determination on
 7 the pertinence of that material regardless.
 8 BY MR. ZELLERS:
 9 Q. Without looking at any other
 10 documents or any documents that may put the
 11 documents you were provided in context?
 12 MS. O'DELL: Object to the
 13 form.
 14 A. It depends on the specific
 15 case, but I would say in most cases, yes.
 16 BY MR. ZELLERS:
 17 Q. In this case, it was not
 18 necessary for you to look at any documents
 19 other than those specific documents the
 20 plaintiffs provided to you; is that your
 21 testimony?
 22 MS. O'DELL: Object to the
 23 form.
 24 A. Regarding the contribution to

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1 my opinions, I would say, yes, it was not
 2 necessary.
 3 BY MR. ZELLERS:
 4 Q. Did you do any independent
 5 investigation to reach your opinions, other
 6 than the literature search and review of
 7 websites that you told us about earlier?
 8 A. Other than just general
 9 discussion with colleagues, no.
 10 Q. Did any of the colleagues that
 11 you spoke with provide you with any
 12 substantive support for your opinions?
 13 A. Not that I can recall. It was
 14 mostly just helpful feedback.
 15 Q. The colleagues that you spoke
 16 with were who?
 17 A. Various colleagues in my
 18 department or in the School of Public Health.
 19 Q. Who?
 20 A. Well, Dr. George Delclos, who
 21 is a pulmonologist; Dr. Brett Perkison, who
 22 is an occupational medicine physician;
 23 Roberta Ness, who is an epidemiologist.
 24 Q. Roberta Ness is in your

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1 department?
 2 A. She's in my department, yes.
 3 Q. You understand she's a
 4 lawyer -- strike that.
 5 You understand she's an expert
 6 for the plaintiffs in this litigation?
 7 A. I didn't know that.
 8 Q. Dr. Ness never told you that
 9 she was an expert witness for plaintiffs in
 10 this matter?
 11 A. No, we didn't discuss this
 12 case. We only discussed the issue.
 13 Q. Any other colleagues that you
 14 discussed your report and opinions with?
 15 MS. O'DELL: Object to the
 16 form.
 17 A. I think I shared some of my
 18 thinking with the occupational medicine
 19 residents as a group and asked them to
 20 consider certain issues in the case.
 21 BY MR. ZELLERS:
 22 Q. Did they contribute to your
 23 review and analysis and opinions?
 24 A. We had an interesting

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1 discussion, but I don't think that changed my
 2 opinions in any way.
 3 Q. The opinions that you're
 4 expressing in this case are your opinions; is
 5 that right?
 6 A. That's correct.
 7 Q. Your opinions you set forth in
 8 your report beginning on page 7; is that
 9 right?
 10 A. Let me refer to my report, if
 11 you don't mind.
 12 MS. O'DELL: Object to the
 13 form.
 14 A. I would say -- I would say in
 15 answer to that question that, yes, my
 16 opinions do begin on page 7 of the report.
 17 BY MR. ZELLERS:
 18 Q. Your first opinion set forth on
 19 page 7 is that talcum powder is immunogenic
 20 and carcinogenic; is that right?
 21 A. Yes.
 22 MS. O'DELL: Excuse me.
 23 BY MR. ZELLERS:
 24 Q. Your second opinion is that

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1 perineal use of talcum powder results in
2 direct exposure to the ovaries either via
3 inhalation or migration through the female
4 reproductive tract, correct?
5 A. I would not phrase the opinion
6 in that way, but in general, that is my
7 opinion, yes.
8 Q. How would you phrase your
9 second opinion?
10 A. I think my second opinion
11 relates mostly to the direct exposure to the
12 reproductive tract that perineal use of
13 talcum powder produces.
14 Q. Are you opining as to
15 inhalation as an exposure of talcum powder to
16 women's ovaries?
17 MS. O'DELL: Object to the
18 form.
19 A. Only as a secondary route of
20 exposure.
21 BY MR. ZELLERS:
22 Q. Is it part of your opinions or
23 do you defer to other experts on inhalation?
24 A. I would include that as my

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1 opinion.
2 Q. So you're testifying here today
3 that the perineal use of talcum powder
4 results in direct exposure to the ovaries
5 through migration through the female
6 reproductive tract and that inhalation also
7 results in exposure of talcum powder to the
8 ovaries; is that right?
9 A. That is correct, but my basic
10 opinion is that perineal use of talcum powder
11 exposes the entire reproductive tract,
12 including the pelvic cavity. So it's a bit
13 more extensive than your phrasing.
14 Q. Your third opinion is very
15 similar to your first opinion, except that
16 here you add that it's your opinion that the
17 ovaries are particularly susceptible to the
18 carcinogenicity of talcum powder because they
19 have, in your words, "no intrinsic
20 elimination system"; is that right?
21 A. That's correct.
22 Q. Is that something you came up
23 with on your own, no intrinsic elimination
24 system?

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1 MS. O'DELL: Object to the
2 form.
3 A. It's an anatomical fact. The
4 physiology of the reproductive system does
5 not provide the ovaries with the kind of
6 clearance system that, for example, the lungs
7 would have for inhaled exposures.
8 BY MR. ZELLERS:
9 Q. The words "no intrinsic
10 elimination system," are those your words or
11 are those words that you've seen reported in
12 another study or another paper?
13 A. I think that's a fairly generic
14 description, that those are my words.
15 Q. Your fourth opinion is that you
16 believe that the epidemiological studies on
17 talcum powder and ovarian cancer show about a
18 30% increased risk; is that right?
19 A. Correct.
20 MS. O'DELL: Object to the
21 form.
22 BY MR. ZELLERS:
23 Q. As you told us at the outset,
24 those are all still your opinions, although

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1 you do believe even stronger that there is a
2 causal association between talcum powder and
3 ovarian cancer; is that right?
4 A. That's correct.
5 Q. Have you published on your
6 theory that baby powder causes ovarian
7 cancer?
8 A. No.
9 Q. Do you have plans to do that?
10 A. Not presently.
11 Q. Have you conducted any tests or
12 experiments to confirm your theory that talc
13 migrates to the ovaries?
14 MS. O'DELL: Object to the
15 form.
16 A. These are conclusions that I
17 have drawn based on published literature. I
18 wouldn't characterize them as a theory. I
19 think they're pretty much established fact.
20 BY MR. ZELLERS:
21 Q. I'm going to ask you about all
22 these opinions, and so we'll go through the
23 literature and determine -- or at least I'll
24 ask you questions about why you think that

<p style="text-align: right;">Page 86</p> <p>1 some of these matters are established fact. 2 My question is: Did you do any 3 tests or experiments as part of your review 4 and analysis in this matter? 5 A. I did not. 6 Q. Did you do any tests or 7 experiments relating to your opinion that 8 talc causes cancer via inflammation? 9 A. I did not. 10 Q. Can you identify any article 11 that identifies inflammation anywhere in a 12 woman's reproductive tract that results from 13 external genital talc application? 14 MS. O'DELL: Object to the 15 form. 16 A. I think there are a number of 17 published articles that allude to that 18 relationship and draw a fairly strong 19 conclusion that it exists. 20 MS. O'DELL: Mike, excuse me, 21 and I'm sorry to interrupt. We've 22 been going over an hour and a half. 23 Are you at a point where we can take 24 just a short break for...</p>	<p style="text-align: right;">Page 88</p> <p>1 you aware of any article that identifies 2 inflammation in a woman's reproductive tract 3 resulting from external genital talc 4 application? 5 MS. O'DELL: Object to the 6 form. 7 A. I would say that the studies 8 which have looked at that have relied on the 9 result of internal application to show 10 migration. There have been studies that have 11 shown inflammation as the result of talc, and 12 in my opinion, external application is the 13 same as internal application in the 14 reproductive tract. 15 BY MR. ZELLERS: 16 Q. I don't mean to be 17 argumentative, and I don't want to be, but 18 can you name me an article that identifies 19 inflammation in a woman's reproductive tract 20 resulting from external genital talc 21 application? 22 MS. O'DELL: Objection, asked 23 and answered. 24 A. I can't specifically.</p>
<p style="text-align: right;">Page 87</p> <p>1 MR. ZELLERS: Sure, we can. 2 Let me just ask these couple of 3 questions, and then we'll take a 4 break. 5 MS. O'DELL: Sure. 6 BY MR. ZELLERS: 7 Q. So please identify for me any 8 articles that you have reviewed that identify 9 inflammation anywhere in a woman's 10 reproductive tract resulting from external 11 genital talc application. 12 MS. O'DELL: Objection to form. 13 A. I think -- I think the research 14 evidence that includes the epidemiology 15 piece, which is limited to external 16 application of talcum powder, has significant 17 enough correspondence with the biological 18 experimentation literature that it allows us 19 to draw those conclusions. 20 BY MR. ZELLERS: 21 Q. I understand you've drawn some 22 conclusions here, and I'm going to ask you 23 about these conclusions. 24 But what my question is: Are</p>	<p style="text-align: right;">Page 89</p> <p>1 MR. ZELLERS: Let's take a 2 break. 3 THE VIDEOGRAPHER: We're off 4 the record, 10:37, end of Tape 1. 5 (Recess taken, 10:37 a.m. to 6 10:55 a.m.) 7 THE VIDEOGRAPHER: We're on the 8 record at 10:55, beginning of Tape 2. 9 BY MR. ZELLERS: 10 Q. Dr. Carson, two of the things 11 that you have reviewed since authoring your 12 report in November of 2018 that you believe 13 support your conclusions in this matter and 14 your opinions in this matter are the draft 15 screening assessment from Health Canada, 16 which we marked as Exhibit 9, and the Taher 17 paper, which has been marked as Exhibit 7; is 18 that right? 19 A. Yes. 20 Q. Have you looked into what other 21 public health authorities, other than 22 Health Canada, have had to say about talc and 23 ovarian cancer? 24 A. Yes, I have.</p>

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1 Q. Did you -- strike that.
 2 Are you familiar with the
 3 Center for Disease Control in the United
 4 States?
 5 A. Yes.
 6 Q. Did you review the CDC and its
 7 position on any relationship between talcum
 8 powder and ovarian cancer?
 9 A. That may have been part of my
 10 review, but I don't specifically recall now
 11 what the CDC has on that issue.
 12 Q. CDC does not list talc or
 13 talcum powder as a risk factor for ovarian
 14 cancer, correct?
 15 A. It's quite possible.
 16 Q. Mayo Clinic and a number of
 17 medical centers do not list talc as a risk
 18 factor for ovarian cancer, correct?
 19 A. That may be true.
 20 Q. Did you consider, or are you
 21 familiar with the National Cancer Institute?
 22 A. I am.
 23 Q. National Cancer Institute is a
 24 leading health authority in the United

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1 States; is that right?
 2 A. Yes.
 3 Q. Particularly in the area of
 4 cancer and materials that may or may not be
 5 carcinogenic; is that right?
 6 A. Well, the National Cancer
 7 Institute is responsible for guiding national
 8 research policies as it relates to cancers,
 9 and that's one of their considerations is
 10 substances that may be related to cancer.
 11 Q. When you reviewed what the
 12 National Cancer Institute has determined with
 13 respect to talcum powder and whether or not
 14 it is a risk factor for ovarian cancer, what
 15 did you find?
 16 A. The most recent publication
 17 that I viewed discounts the relationship.
 18 Q. In fact, the National Cancer
 19 Institute has concluded that the weight of
 20 the evidence does not support an association
 21 between perineal talc exposure and increased
 22 risk of ovarian cancer; is that right?
 23 MS. O'DELL: Are you reading a
 24 quote from the document?

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1 MR. ZELLERS: I'm asking the
 2 doctor a question.
 3 MS. O'DELL: Okay.
 4 MR. ZELLERS: So --
 5 MS. O'DELL: That's specific
 6 language, and if you have specific
 7 language that you're reading from the
 8 report or you've taken from the
 9 report, I would just ask that you show
 10 the doctor.
 11 MR. ZELLERS: Ms. O'Dell, I
 12 have my question. I'm asking my
 13 question. The doctor can either
 14 answer my question or not answer my
 15 question. I'm not reading from a
 16 document. I'm reading from my notes.
 17 MS. O'DELL: I object to the
 18 form of the question. I think it's
 19 unfair.
 20 MR. ZELLERS: Can you answer
 21 that question, Doctor?
 22 A. I would agree that that
 23 restates the general opinion of the NCI as
 24 published, but in order to verify the

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1 specific wording, I would need to look at the
 2 document.
 3 BY MR. ZELLERS:
 4 Q. Why would you rely on
 5 Health Canada but not these other public
 6 health organizations, including Center for
 7 Disease Control and the National Cancer
 8 Institute?
 9 A. Well, there are a number of
 10 reasons. There are lots of public health
 11 organizations. Many of them have different
 12 interests and different approaches in the way
 13 that they address problems. For example,
 14 discussing the National Cancer Institute, its
 15 primary focus is on research and treatments
 16 regarding cancers, not necessarily causes,
 17 but it is a funder of basic research in the
 18 United States.
 19 Health Canada is an
 20 organization whose charge is to -- is to
 21 synthesize public health-related positions
 22 based on evidence and disseminate those to
 23 public -- the public through various
 24 healthcare organizations or agencies. And

<p style="text-align: right;">Page 94</p> <p>1 for that reason, I think it's important to 2 look at the different focus. 3 Also, the Health Canada report 4 is a more contemporaneous report, which has 5 been based on more recent science than has 6 been considered either by the NCI or some of 7 the other public health organizations. 8 Q. The NCI's most recent update to 9 its publication was January of 2019; is that 10 right? 11 MS. O'DELL: Object to the 12 form. 13 A. It's current in terms of its 14 publication. I don't know that it's January 15 of '19; it may be. But it's still not based 16 on the most recently available literature. 17 BY MR. ZELLERS: 18 Q. But Health Canada is; is that 19 right? 20 A. Health Canada is based on more 21 recent literature than the NCI position. 22 Q. Health Canada and its 23 assessment is based upon the meta-analysis by 24 Taher that we've marked as Exhibit 7; is that</p>	<p style="text-align: right;">Page 96</p> <p>1 very beginning of the public comment period, 2 correct? 3 A. Yes. 4 Q. You agree that Health Canada 5 can take up to two years to either take 6 action or no action at all; is that right? 7 A. I don't know that to be the 8 case, but it very well could be. 9 Q. How did you come to learn of 10 the Health Canada risk assessment? 11 A. I believe the attorneys let me 12 know about it. 13 Q. The attorneys for plaintiffs in 14 this matter that retained you? 15 A. Yes. 16 Q. Were you involved in the Health 17 Canada risk assessment prior to its 18 publication? 19 A. No. 20 Q. Have you submitted any comments 21 to Health Canada? 22 A. Not yet. 23 Q. Do you intend to submit 24 comments to Health Canada?</p>
<p style="text-align: right;">Page 95</p> <p>1 right? 2 A. It is. 3 MS. O'DELL: Object to the 4 form. 5 BY MR. ZELLERS: 6 Q. You have reviewed that paper 7 and you believe it supports and strengthens 8 your opinions in this case; is that right? 9 A. Yes. 10 Q. Does the National Cancer 11 Institute review the peer-reviewed literature 12 as it relates to risk factors for ovarian 13 cancer? 14 A. They have a number of 15 committees that are set up for that purpose, 16 and it is -- it's a committee approach which 17 is handled by a committee chairperson. The 18 National Cancer Institute itself has some 19 oversight of that process, but they defer to 20 the committee chairs. 21 Q. You understand that the Health 22 Canada assessment is a draft; is that right? 23 A. Yes. 24 Q. You understand that it's at the</p>	<p style="text-align: right;">Page 97</p> <p>1 A. I might. 2 Q. What comments do you intend to 3 submit to Health Canada? 4 A. I haven't formulated them yet. 5 Q. Outside of litigation, do you 6 generally rely on draft assessments by 7 regulatory agencies? 8 MS. O'DELL: Object to the 9 form. 10 A. Yes. 11 BY MR. ZELLERS: 12 Q. Are you familiar with the 13 precautionary principle? 14 A. I am. 15 Q. What is the precautionary 16 principle? 17 A. The precautionary principle 18 states that changes should take place in the 19 face of a potential hazard until that hazard 20 is proved not to exist. It's a general 21 precept that's used in the EU, for example, 22 and very different from the one that operates 23 in this country. 24 Q. The principle in this country</p>

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1 is that there needs to be scientific evidence
 2 in order to take action; is that right?
 3 MS. O'DELL: Object to the
 4 form.
 5 A. Yes, that's correct.
 6 BY MR. ZELLERS:
 7 Q. The precautionary principle
 8 says even before there's full or complete
 9 scientific demonstration of cause and effect,
 10 it is appropriate to take a precautionary
 11 approach; is that right?
 12 A. That's right.
 13 Q. The Health Canada follows --
 14 strike that.
 15 Health Canada follows and has
 16 adopted a precautionary approach; is that
 17 right?
 18 A. Yes.
 19 Q. Please review
 20 Deposition Exhibit 14.
 21 (Carson Deposition Exhibit 14
 22 marked.)
 23 BY MR. ZELLERS:
 24 Q. Deposition Exhibit 14 is the

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1 Health Canada Decision-Making Framework for
 2 Identifying, Assessing and Managing Health
 3 Risk.
 4 Do you see that?
 5 A. Yes.
 6 Q. If you go to page 5 of
 7 Exhibit 14 --
 8 MS. O'DELL: Feel free to
 9 take -- review the document if you're
 10 not familiar with it, Dr. Carson.
 11 BY MR. ZELLERS:
 12 Q. One of the underlying
 13 principles in the Health Canada
 14 decision-making framework is use a
 15 precautionary approach; is that right?
 16 A. That's right.
 17 Q. If we go to page 8, Health
 18 Canada defines the use of a precautionary
 19 approach, and looking at the second sentence:
 20 A precautionary approach to decision-making
 21 emphasizes the need to take timely and
 22 appropriate preventative action, even in the
 23 absence of a full scientific demonstration of
 24 cause and effect.

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1 Did I read that correctly?
 2 A. You did.
 3 Q. Is that your understanding of
 4 what a precautionary approach is?
 5 A. Yes. In general, the
 6 precautionary principle can be restated that
 7 an ounce of prevention is worth a pound of
 8 cure.
 9 Q. Health Canada does not require
 10 a finding of causation such as required in
 11 litigation matters in this country, the
 12 United States; is that right?
 13 A. In order to adopt a document
 14 that has a significant effect on general
 15 public health practices, no, it does not.
 16 Q. The Taher paper, that's another
 17 paper that you have reviewed since you
 18 published your report; is that right?
 19 A. Which paper? I'm sorry.
 20 Q. This is what we've marked as
 21 Exhibit 7. You brought it with you here
 22 today?
 23 A. Okay. Yes.
 24 Q. You've read the Taher 2018

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1 manuscript; is that right?
 2 A. Yes.
 3 Q. Where did you obtain that
 4 manuscript from?
 5 A. This was obtained directly from
 6 one of the coauthors on this study to the
 7 plaintiffs' attorneys, who passed it along to
 8 me.
 9 Q. So one of the coauthors on this
 10 study gave it to the plaintiffs' counsel, who
 11 then gave it to you; is that right?
 12 A. That's correct.
 13 Q. Who was the author of this
 14 publication, Exhibit 7, that provided the
 15 paper to plaintiffs' counsel, if you know?
 16 A. I don't recall.
 17 Q. But one of these authors; is
 18 that right?
 19 A. It would -- yes.
 20 Q. Why did you not include this
 21 paper on either your reliance list or your
 22 literature list?
 23 A. I didn't have it at the time
 24 that those were formulated.

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1 Q. Did you have access to the
2 appendices and supplemental tables that are
3 referred to in the Taher 2018 publication
4 which we've marked as Exhibit 7?
5 A. The ones that are not in
6 this -- in this document or --
7 Q. Yes.
8 A. Those -- I have not thoroughly
9 examined those, but I do have access to them.
10 Q. How do you have access to those
11 appendices and supplemental tables?
12 A. They were also provided to me
13 by plaintiffs' counsel.
14 Q. Has the Taher publication,
15 which we've marked as Exhibit 7, been peer
16 reviewed?
17 A. It's in the process. This is a
18 manuscript that's just been accepted for
19 publication, so it has gone through peer
20 review.
21 Q. It has gone through peer
22 review --
23 A. That's my understanding.
24 Q. -- and Exhibit 7 is the article

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1 that you believe will be published; is that
2 right?
3 A. This is a -- this is a working
4 manuscript which has gone through at least
5 part of the peer-review process. There may
6 be minor edits that occur to this, but this
7 is substantially the final article.
8 Q. How do you know that?
9 A. That's the general process of
10 submitting publications to peer-reviewed
11 article -- journals.
12 Q. How do you know -- I'm sorry,
13 did you finish?
14 A. I'm finished.
15 Q. How did you know the status of
16 the peer-review process with respect to
17 Exhibit 7?
18 A. Because it's been accepted for
19 publication.
20 Q. How do you know that?
21 A. That, I was told by the
22 plaintiffs' attorneys.
23 Q. And you've accepted that; is
24 that right?

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1 A. Yes, I have.
2 Q. Do you know any of the authors
3 of this paper, Exhibit 7?
4 A. No, I don't.
5 Q. Do you know the source of
6 funding for this paper?
7 A. I -- I think the sources of
8 funding are mentioned in here.
9 Q. Other than what's mentioned in
10 the paper, Exhibit 7, do you have any
11 knowledge as to the sources of funding?
12 A. There's a combination of
13 sources. In part, this work is funded
14 through the plaintiffs' attorneys.
15 Q. Have you communicated with any
16 of the authors of this paper?
17 A. No.
18 Q. Do you know the credentials of
19 any of the authors of this paper?
20 A. I haven't investigated that.
21 Q. In your epidemiological work
22 outside of litigation, do you rely on
23 articles that are funded at least in part by
24 plaintiffs' counsel in litigation?

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1 A. If the articles represent good
2 science, I don't really pay much attention or
3 worry about the funding source.
4 Q. Do you know what conflicts of
5 interest any of the authors have?
6 A. I don't know specifically. I
7 can't recall if they're outlined in here.
8 But the -- those are also evaluated based on
9 the peer-review process.
10 Q. Do you know whether some of the
11 authors are serving as consultants to
12 plaintiffs' counsel in this litigation?
13 A. I know that -- no, I don't know
14 that. Excuse me, I gave an incorrect answer.
15 Q. Sure. Correct it, please.
16 A. I mentioned that part of the
17 funding for this research came from
18 plaintiffs' counsel, and I'm not -- I don't
19 know that that's the case. I was thinking of
20 another research report when I said that.
21 Q. Do you know whether or not, at
22 least in part, funding for this paper, the
23 Taher paper, came from plaintiffs' counsel?
24 A. No, I don't.

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<p>1 Q. Taher, this paper, Exhibit 7, 2 concludes that asbestos contamination does 3 not explain ovarian cancer, correct? 4 A. It does come to that general 5 conclusion. 6 Q. That's a different conclusion 7 than you have formulated in this matter; is 8 that right? 9 A. No, it's not. 10 Q. You agree that asbestos 11 contamination does not explain ovarian 12 cancer; is that right? 13 A. It doesn't completely explain 14 ovarian cancer. 15 Q. Does it explain ovarian cancer? 16 MS. O'DELL: Objection, asked 17 and answered. 18 A. I -- I don't believe it 19 completely explains ovarian cancer, no. 20 BY MR. ZELLERS: 21 Q. Turn to page 41 of Exhibit 7. 22 Look at the last three lines of the paper. 23 The authors of the Taher publication state: 24 The similarity of findings between studies</p>	<p>1 factors is consistency; is that right? 2 A. Yes. 3 Q. You, in fact, are opining in 4 this case that there is consistency among the 5 talcum powder ovarian cancer studies and 6 publications; is that right? 7 A. Yes. 8 Q. The authors of the Taher paper 9 disagree with that conclusion; is that right? 10 MS. O'DELL: Object to the 11 form. 12 A. I don't think they disagree 13 with that. 14 BY MR. ZELLERS: 15 Q. Turn to page 25, Table 2. This 16 is, again, something that you have reviewed 17 in preparation for your deposition; is that 18 right? 19 A. Well, I didn't review it in 20 preparation for the deposition, but I've 21 reviewed it recently. 22 Q. At the request of plaintiffs' 23 counsel, correct? 24 A. Yes.</p>
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<p>1 published prior to and after this point 2 suggest asbestos contamination does not 3 explain the positive association between 4 perineal use of talc powder and the risk of 5 ovarian cancer. 6 Did I correctly state their 7 conclusion? 8 A. Well, there was a final clause 9 of the sentence, but yes, you correctly read 10 that. 11 Q. The Taher authors also 12 discussed the lack of consistency among the 13 various talcum powder studies; is that right? 14 MS. O'DELL: Object to the 15 form. 16 A. I'm sorry, could you repeat 17 that question? 18 BY MR. ZELLERS: 19 Q. Sure. 20 You looked at the Bradford Hill 21 factors in formulating your opinion; is that 22 right? 23 A. Yes. 24 Q. One of the Bradford Hill</p>	<p>1 Q. Table 2 is a summary of 2 evidence for each of the Hill criteria of 3 causation as applied to perineal application 4 of talc and ovarian cancer. 5 Do you see that? 6 A. Yes. 7 Q. Under Consistency, they state 8 that 15 out of 30 studies reported positive 9 and significant associations; is that right? 10 A. Yes. 11 Q. 15 out of 30, that's 50%, 12 right? 13 A. Yes. 14 Q. 50% is no better than a coin 15 toss; is that right? 16 MS. O'DELL: Object to the 17 form. 18 A. Well, I would have to also 19 mention that the majority of those 30 studies 20 found positive associations. These are the 21 ones that showed positive associations that 22 rose to the level of statistical 23 significance. 24 ///</p>

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1 BY MR. ZELLERS:
 2 Q. If an association is not
 3 statistically significant, then it can be due
 4 to chance; is that right?
 5 A. But if it's due to chance over
 6 and over and over again, and you keep getting
 7 a positive association, that argues very
 8 strongly against the chance as being the only
 9 factor.
 10 Q. Can you answer my question: A
 11 lack of a statistically significant
 12 association is consistent with or can be
 13 consistent with no risk, correct?
 14 MS. O'DELL: Objection to form,
 15 asked and answered.
 16 A. If you're referring to an
 17 individual study, that might be the case;
 18 however, when considering the Bradford Hill
 19 criterion of consistency, you look at the
 20 overall body of the literature and what it
 21 tells you.
 22 There's an obvious statistical
 23 trend toward positive connection between
 24 talcum powder perineal application and the

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1 occurrence of ovarian cancer, and the more
 2 evidence that mounts, the more strongly that
 3 association is proven.
 4 BY MR. ZELLERS:
 5 Q. Would you say that 15 out of 30
 6 means there are consistent results across
 7 studies?
 8 A. I think I've just explained to
 9 you how I believe there are consistent
 10 results across studies.
 11 Q. The authors of the Taher paper
 12 also conclude that they do not find a
 13 consistent dose-response in the papers that
 14 look at perineal application of talc and
 15 ovarian cancer; is that right?
 16 MS. O'DELL: Object to the
 17 form.
 18 A. Well, what they actually say is
 19 that about half of the epidemiological
 20 studies assess only one level of talc
 21 exposure, ever versus never. So it's not
 22 possible from those studies to establish a
 23 biological gradient.
 24 However, there are a number of

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1 studies that have shown a biological gradient
 2 at -- especially in relation to some of the
 3 subtypes of ovarian cancer.
 4 BY MR. ZELLERS:
 5 Q. And I'm going to ask you about
 6 those questions, but right now I'm just
 7 asking you about the Taher paper.
 8 A. Well, I'm trying to just
 9 completely answer your question.
 10 Q. I'm asking you about the Taher
 11 paper. You understand?
 12 A. Yes. This is all from the
 13 Taher paper that I read you.
 14 Q. Section 3.3.1 talks about
 15 evidence from human studies. That's on
 16 page 20; is that right?
 17 A. Yes.
 18 Q. This section talks about
 19 whether or not there is a consistent
 20 dose-response found in those studies; is that
 21 right?
 22 MS. O'DELL: What sentence are
 23 you pointing to?
 24 MR. ZELLERS: I'm asking the

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1 doctor questions based upon his review
 2 of the paper, Ms. O'Dell.
 3 MS. O'DELL: Okay. Feel free
 4 to review it, Doctor, if you need to.
 5 THE WITNESS: I'm just taking a
 6 look at this section.
 7 BY MR. ZELLERS:
 8 Q. And if it helps you, look on
 9 page 21, lines 174 through 177.
 10 (Document review.)
 11 BY MR. ZELLERS:
 12 Q. I only want to ask you about
 13 two sentences. Are you ready for me to ask
 14 you my question?
 15 A. Just one moment, please.
 16 Q. Sure.
 17 (Document review.)
 18 THE WITNESS: All right, I'm
 19 ready for your question.
 20 BY MR. ZELLERS:
 21 Q. The Taher paper states that
 22 many of the studies only reported on the
 23 ovarian cancer risk assessing one exposure
 24 category and that exposure response analyses

<p style="text-align: right;">Page 114</p> <p>1 were not done in all studies; is that right?</p> <p>2 A. Yes.</p> <p>3 Q. When conducted, findings from</p> <p>4 trend analyses were not consistent; is that</p> <p>5 correct?</p> <p>6 MS. O'DELL: Object to the</p> <p>7 form.</p> <p>8 A. Yes.</p> <p>9 BY MR. ZELLERS:</p> <p>10 Q. All right. With respect -- I'm</p> <p>11 done with that paper.</p> <p>12 You discuss your opinion</p> <p>13 number 1 on page 7 of your report; is that</p> <p>14 right?</p> <p>15 A. Yes.</p> <p>16 Q. You first state on page 7 that</p> <p>17 you believe talcum powder is immunogenic and</p> <p>18 produces chronic inflammation in the tissues;</p> <p>19 is that right?</p> <p>20 A. Yes.</p> <p>21 Q. You state that other components</p> <p>22 in talcum powder, including mineral fibers,</p> <p>23 asbestos, fibrous talc, carcinogenic metals</p> <p>24 and other chemicals intensify the</p>	<p style="text-align: right;">Page 116</p> <p>1 inflammation in the tissues in which it</p> <p>2 sequesters; is that right?</p> <p>3 A. Yes.</p> <p>4 Q. Assuming for the moment that</p> <p>5 talc can reach the ovaries, is it your</p> <p>6 opinion that talc produces chronic</p> <p>7 inflammation in the ovaries and that this</p> <p>8 somehow leads to ovarian cancer?</p> <p>9 A. It is my opinion that talc</p> <p>10 produces chronic inflammation in the</p> <p>11 epithelial tissues of the ovaries and</p> <p>12 surrounding epithelial tissues and leads to</p> <p>13 both carcinogenesis initiation and promotion.</p> <p>14 Q. There are no reports in the</p> <p>15 literature of externally applied talc leading</p> <p>16 to inflammation, granulomas, fibrosis or</p> <p>17 adhesions anywhere along a woman's</p> <p>18 reproductive tract, correct?</p> <p>19 MS. O'DELL: Object to the</p> <p>20 form, asked and answered.</p> <p>21 A. Well, that's similar to the</p> <p>22 question that you asked earlier, and although</p> <p>23 I'm not aware of experimental reports that</p> <p>24 specifically jive with that condition,</p>
<p style="text-align: right;">Page 115</p> <p>1 inflammatory response and stimulate cell</p> <p>2 growth and proliferation; is that right?</p> <p>3 A. Yes.</p> <p>4 Q. Other than asbestos, what</p> <p>5 mineral fibers in talc intensify the</p> <p>6 inflammatory response?</p> <p>7 A. Well, the endogenous fibrous</p> <p>8 talc fibers also intensify the response.</p> <p>9 Q. Other than asbestos and fibrous</p> <p>10 talc fibers, what mineral fibers in talc do</p> <p>11 you believe intensify the inflammatory</p> <p>12 response?</p> <p>13 A. I'm not really able to answer</p> <p>14 that question because I don't have a specific</p> <p>15 opinion about it. I'm not a geologist.</p> <p>16 Q. Are the other chemicals that</p> <p>17 you refer to in this section fragrance</p> <p>18 chemicals?</p> <p>19 A. Yes.</p> <p>20 Q. Any others?</p> <p>21 A. None that are intentionally</p> <p>22 added.</p> <p>23 Q. You claim, again on page 7,</p> <p>24 that talcum powder produces chronic</p>	<p style="text-align: right;">Page 117</p> <p>1 certainly there are a lot of theoretical</p> <p>2 reports that have been published.</p> <p>3 For example, Dr. Ness' article</p> <p>4 from '99 lays out the theory of inflammation</p> <p>5 and relates that to talc exposure from</p> <p>6 perineal application.</p> <p>7 BY MR. ZELLERS:</p> <p>8 Q. This is your colleague,</p> <p>9 Dr. Ness; is that right?</p> <p>10 A. Ness, and Coussens, when she</p> <p>11 was at Pittsburgh.</p> <p>12 Q. Dr. Ness, you showed her your</p> <p>13 report and asked for her comments; is that</p> <p>14 right?</p> <p>15 A. I didn't show her the report.</p> <p>16 Q. Well, you talked to her about</p> <p>17 and showed her your conclusions and your</p> <p>18 opinions; is that right?</p> <p>19 A. No, I talked to her about the</p> <p>20 paper.</p> <p>21 Q. Her paper?</p> <p>22 A. Yes.</p> <p>23 Q. Did you share with her that you</p> <p>24 were going to be an expert for the plaintiffs</p>

<p style="text-align: right;">Page 118</p> <p>1 in this litigation?</p> <p>2 A. No, I didn't.</p> <p>3 Q. Did she wonder or ask why it</p> <p>4 was that you were researching or looking into</p> <p>5 this issue?</p> <p>6 A. She -- I think she may have,</p> <p>7 yeah.</p> <p>8 Q. And what did you tell her?</p> <p>9 A. I told her I had been recently</p> <p>10 asked to look into it.</p> <p>11 Q. Did you tell her that you'd</p> <p>12 been asked to look into it by counsel for</p> <p>13 plaintiffs in the talc litigation?</p> <p>14 A. No, I didn't.</p> <p>15 Q. And that never came up; is that</p> <p>16 right?</p> <p>17 A. It didn't.</p> <p>18 Q. And she never talked to you or</p> <p>19 told you about her experience and her work as</p> <p>20 counsel -- strike that, as an expert for</p> <p>21 plaintiffs; is that your testimony?</p> <p>22 A. Yes. It was a very brief</p> <p>23 conversation.</p> <p>24 Q. If up to 50% of all U.S. women</p>	<p style="text-align: right;">Page 120</p> <p>1 talc relating to that, and to my knowledge,</p> <p>2 there are no experimental reports or case</p> <p>3 reports that can document that at the current</p> <p>4 time.</p> <p>5 Q. Granulomas, fibrosis and</p> <p>6 adhesions do not cause ovarian cancer,</p> <p>7 correct?</p> <p>8 MS. O'DELL: Object to the</p> <p>9 form.</p> <p>10 A. The inflammatory process that</p> <p>11 is intimately connected with granuloma</p> <p>12 formation may well be the same process that</p> <p>13 results in mutation and promotion of ovarian</p> <p>14 cancer. So I -- I could not agree completely</p> <p>15 with your statement.</p> <p>16 BY MR. ZELLERS:</p> <p>17 Q. Is there a good scientific</p> <p>18 basis today to opine that granulomas,</p> <p>19 fibrosis or adhesions cause ovarian cancer?</p> <p>20 MS. O'DELL: Object to the</p> <p>21 form.</p> <p>22 A. No, I don't think they cause</p> <p>23 ovarian cancer.</p> <p>24 ///</p>
<p style="text-align: right;">Page 119</p> <p>1 have used genital talc, shouldn't there be</p> <p>2 studies which have shown inflammation,</p> <p>3 granulomas, fibrosis or adhesions in a</p> <p>4 woman's reproductive tract?</p> <p>5 MS. O'DELL: Object to the</p> <p>6 form.</p> <p>7 A. Well, there are studies that</p> <p>8 show those things.</p> <p>9 BY MR. ZELLERS:</p> <p>10 Q. Please, tell me the published</p> <p>11 studies that demonstrate inflammation,</p> <p>12 granulomas, fibrosis or adhesions in a</p> <p>13 woman's reproductive tract from externally</p> <p>14 applied talc?</p> <p>15 A. Well, you're adding a new</p> <p>16 condition now.</p> <p>17 Q. I'm sorry if I didn't add that</p> <p>18 before.</p> <p>19 A. There are multiple studies that</p> <p>20 show inflammation and other inflammatory</p> <p>21 reactions in connection with the occurrence</p> <p>22 of ovarian cancer.</p> <p>23 The piece that you're now</p> <p>24 asking for is the external application of</p>	<p style="text-align: right;">Page 121</p> <p>1 BY MR. ZELLERS:</p> <p>2 Q. Would you agree that not all</p> <p>3 inflammatory conditions lead to cancer?</p> <p>4 A. Yes.</p> <p>5 Q. It's true that all of us</p> <p>6 experience inflammatory reactions of one sort</p> <p>7 or another, including chronic conditions,</p> <p>8 that do not lead to cancer, correct?</p> <p>9 A. That's correct. Although there</p> <p>10 is a strong relationship between inflammatory</p> <p>11 processes and the occurrence of cancers, and</p> <p>12 some of those inflammatory diseases that</p> <p>13 you're referring to also have associations</p> <p>14 with increased rates of cancers.</p> <p>15 MR. ZELLERS: Move to strike as</p> <p>16 nonresponsive.</p> <p>17 BY MR. ZELLERS:</p> <p>18 Q. Rheumatoid arthritis is an</p> <p>19 inflammatory condition; is that right?</p> <p>20 A. Yes, it is.</p> <p>21 Q. Does it increase the risk of</p> <p>22 ovarian cancer?</p> <p>23 A. I think I -- it does -- it's</p> <p>24 not associated with ovarian cancer, but I</p>

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1 think it may be associated with other
 2 cancers.
 3 Q. Does -- strike that.
 4 Is psoriasis an inflammatory
 5 condition?
 6 A. Generally, it is.
 7 Q. Is it associated with an
 8 increased risk of ovarian cancer?
 9 A. Not that I'm aware.
 10 Q. In your report you state that
 11 inflammation is a normal body process that
 12 leads to the thwarting of infection and rapid
 13 healing; is that right?
 14 A. That's correct.
 15 Q. If your inflammation theory is
 16 correct, why doesn't inflammation generally,
 17 such as in pelvic inflammatory disease, cause
 18 ovarian cancer?
 19 A. It may do so.
 20 Q. You are opining under oath here
 21 that pelvic inflammatory disease causes
 22 ovarian cancer?
 23 A. I think there are experts who
 24 have concluded that.

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1 Q. What study are you relying on
 2 for that opinion or statement?
 3 A. That's not part of the opinions
 4 that I've been asked to consider in this --
 5 in this case.
 6 Q. As you sit here, can you cite
 7 me a publication or a study that finds that
 8 pelvic inflammatory disease causes ovarian
 9 cancer?
 10 MS. O'DELL: Object to the
 11 form.
 12 A. Well, I have -- I have a list
 13 of studies that relate inflammation to
 14 ovarian cancer and other cancers.
 15 BY MR. ZELLERS:
 16 Q. Can you name me a study or a
 17 publication?
 18 A. Okay. I think I have my list
 19 here.
 20 Q. You brought other materials
 21 with you?
 22 A. I brought this list.
 23 Q. All right. Well, what list are
 24 you pulling out of your pocket?

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1 A. This is a list that I've put
 2 together of some of the studies I've
 3 considered and how they relate to things I
 4 might testify to today.
 5 Q. Why did you not tell me about
 6 your list that you brought with you today
 7 before now?
 8 A. Well, I'm telling you about it
 9 now.
 10 Q. My question is why did you not,
 11 when I asked you what you brought to the
 12 deposition today, not take the list out and
 13 show us the list?
 14 A. I didn't think of it.
 15 Q. Okay. We'll mark your list as
 16 Deposition Exhibit 15.
 17 (Carson Deposition Exhibit 15
 18 marked.)
 19 BY MR. ZELLERS:
 20 Q. These are a number of notes,
 21 four pages of notes. Are these all your
 22 notes?
 23 A. Yes.
 24 Q. First page has got a section of

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1 articles on asbestos and ovarian cancer; is
 2 that right?
 3 A. Yes.
 4 Q. It also has inflammation and
 5 cancer and a number of studies; is that
 6 right?
 7 A. Yes.
 8 Q. Second page has got cohort,
 9 where you've listed out the four cohort
 10 studies; is that right?
 11 A. Yes.
 12 Q. Beneath that are the
 13 meta-analyses where you've listed those out
 14 and made some notes on those, correct?
 15 A. Yes.
 16 Q. The back page of the second
 17 page has got a listing of a number of the
 18 case-control studies, correct?
 19 A. Yes. Those are duplicated on
 20 another page.
 21 Q. The third page has got a
 22 section on migration and studies that you're
 23 looking at for that proposition, correct?
 24 A. Correct.

<p style="text-align: right;">Page 126</p> <p>1 Q. Underneath that, ovarian cancer 2 risk; is that right? 3 A. Yes. 4 Q. Underneath that, talc and other 5 cancer; is that right? 6 A. Yes. 7 Q. And then on the last page, 8 page 4, is a listing of the case-control 9 studies with the odds ratios and confidence 10 intervals; is that right? 11 A. For the most part, yes. 12 Q. All right. So looking now at 13 your list of studies that you have prepared, 14 which study demonstrates or supports the 15 proposition that pelvic inflammatory disease 16 causes ovarian cancer? 17 A. Looking through here, I don't 18 have that item specifically in my notes, but 19 I'm just using my notes to refresh my memory 20 about the individual research report. I 21 think the Coussens and Werb paper from 2010 22 talks about general mechanisms of 23 inflammation in relation to the occurrence of 24 ovarian cancer.</p>	<p style="text-align: right;">Page 128</p> <p>1 authors conclude that pelvic inflammatory 2 disease causes ovarian cancer? Do you 3 believe each of the authors in the studies 4 that you've identified, that their studies 5 stand for that proposition? 6 MS. O'DELL: Object to form, 7 asked and answered. 8 A. I think all of the studies that 9 I've identified for this question do allude 10 to that, yes. 11 BY MR. ZELLERS: 12 Q. That pelvic inflammatory 13 disease causes ovarian cancer, correct? 14 A. That it is a -- it's a factor, 15 yes. 16 Q. It's a cause. That's what they 17 state in those papers, right? 18 MS. O'DELL: Object to the 19 form. 20 BY MR. ZELLERS: 21 Q. That's your testimony? 22 MS. O'DELL: Excuse me, 23 misstates his testimony. Object to 24 the form.</p>
<p style="text-align: right;">Page 127</p> <p>1 And there's the Ness and 2 Cottreau paper from '99. 3 Okada has discussed it in the 4 2007 paper. And there's a paper from 2001 5 which is Balkwill and Mantovani which 6 discusses the relationship between talc and 7 ovarian cancer and also discusses the 8 relationship to other sources of 9 inflammation. 10 Q. Each of those papers that 11 you've identified you believe state that 12 pelvic inflammatory disease is a cause of 13 ovarian cancer, correct? 14 MS. O'DELL: Object to the 15 form. 16 A. Well, I don't think they state 17 that in so many words, but if you read the 18 paper and you understand that -- what pelvic 19 inflammatory disease is and its relationship 20 to inflammatory processes in general, yes, 21 that's what they're saying. 22 BY MR. ZELLERS: 23 Q. Doctor, my question to you was: 24 Are you aware of any papers in which the</p>	<p style="text-align: right;">Page 129</p> <p>1 A. I would say it's a factor and 2 leave it at that. 3 BY MR. ZELLERS: 4 Q. All right. Are you familiar 5 with pleurodesis? 6 A. I am. 7 Q. Does a pleurodesis cause 8 cancer? 9 A. It is not known to, although it 10 might. 11 Q. Are you familiar with the 12 study, 1979, A survey of the long-term 13 effects of talc and kaolin pleurodesis? 14 A. Can tell me who the author of 15 that was? 16 Q. Sure. The author is -- this is 17 from the Research Committee of the British 18 Thoracic Association. The members of the 19 subcommittee were Chappell, Johnson, Charles, 20 Wagner, Seal, Berry and Nicholson. 21 Are you familiar with that 22 paper? 23 A. I'm not familiar with the 24 paper. I may have looked at it in the past.</p>

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1 Q. We'll take a look at it. We'll
 2 mark it as Deposition Exhibit 16.
 3 (Carson Deposition Exhibit 16
 4 marked.)
 5 A. Thank you.
 6 MS. O'DELL: Thank you.
 7 BY MR. ZELLERS:
 8 Q. This was a study that looked at
 9 the association between pleurodesis and lung
 10 cancer; is that right?
 11 A. Yes.
 12 Q. It's a study that you cite on
 13 page 1 of your literature list; is that
 14 right?
 15 A. Okay. Yes.
 16 Q. So you've read it; is that
 17 right?
 18 A. I have.
 19 Q. You've considered it; is that
 20 right?
 21 A. Yes.
 22 Q. They looked at 210 patients
 23 that underwent a pleurodesis with talc or
 24 kaolin 14 to 40 years before; is that right?

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1 A. That's correct.
 2 Q. And they found that there was
 3 no increased incidence of lung cancer and no
 4 cases of mesothelioma; is that right?
 5 A. That's correct.
 6 Q. Why don't -- well, strike that.
 7 You're aware of the studies
 8 that have looked at antiinflammatory drugs
 9 and aspirin use with respect to whether or
 10 not they're associated with -- let me
 11 withdraw that.
 12 Are you familiar with the NSAID
 13 and aspirin use studies relating to the
 14 incidence of ovarian cancer in chronic users?
 15 A. I'm familiar with some of
 16 those, yes.
 17 Q. If your theory is correct that
 18 inflammation causes ovarian cancer, then you
 19 would expect that the studies of NSAIDs and
 20 aspirin use, antiinflammatory drugs that
 21 reduce inflammation, would consistently
 22 reduce the incidence of ovarian cancer,
 23 correct?
 24 MS. O'DELL: Object to the

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1 form.
 2 A. I think that was the hypothesis
 3 of those research reports.
 4 BY MR. ZELLERS:
 5 Q. And, in fact, the NSAID studies
 6 do not find a consistent causal reduction in
 7 the risk of ovarian cancer; is that right?
 8 A. I think that's correct.
 9 Q. In your report you also state
 10 that studies show that use of cornstarch
 11 instead of talcum powder reduces the risk of
 12 ovarian cancer; is that right?
 13 A. Yes.
 14 Q. If inflammation causes cancer,
 15 why would cornstarch be a superior
 16 alternative to talc?
 17 A. The reason is that cornstarch,
 18 being a biological product, is much -- it
 19 does have a rapid clearance from the body,
 20 even when sequestered, in comparison with a
 21 mineral substance like talc.
 22 Q. Well, in fact, cornstarch
 23 causes or increases the risk of inflammation,
 24 granulomas, fibrosis and adhesions, correct?

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1 A. It may, yes.
 2 Q. Just like you claim talcum
 3 powder increases the risk of inflammation,
 4 granulomas, fibrosis and adhesions; is that
 5 right?
 6 MS. O'DELL: Object to the
 7 form.
 8 A. I think you are -- you're
 9 parsing terms here. That list of things were
 10 your words. I was agreeing with the
 11 relationship between talc and inflammation in
 12 ovarian epithelial tissue and the production
 13 or granulomas. I did not discuss the
 14 relationship between talc and adhesions or
 15 fibrosis. There was one other thing on your
 16 list.
 17 BY MR. ZELLERS:
 18 Q. Well, in fact, the FDA has
 19 banned the use of cornstarch as a powder for
 20 lubricating surgical gloves; is that right?
 21 A. It has, but that's not the
 22 reason.
 23 Q. Well, the reason that they
 24 banned the use of cornstarch is because it

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1 presented an unreasonable and substantial
2 risk of illness or injury and that that risk
3 cannot be corrected or eliminated by
4 labeling, correct?
5 A. I don't know the specific
6 language. It looks like you're reading from
7 a Federal Register document.
8 The main reason that cornstarch
9 has been banned as a lubricant in gloves is
10 because of the potential for transmission of
11 primarily respiratory problems through
12 inhalation, mostly by co-workers, not by
13 patients.
14 Q. You do agree that cornstarch
15 has been banned by the FDA for use in
16 surgical gloves; is that right?
17 A. All powdered gloves have been
18 essentially banned from hospitals and
19 operating rooms now.
20 Q. You also talk about
21 inflammation and oxidative stress; is that
22 right?
23 A. Yes.
24 Q. Does the presence of oxidative

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1 stress in a tissue indicate that cancer will
2 develop in that tissue?
3 A. No.
4 Q. If exposure to a substance
5 causes oxidative stress in certain tissue,
6 does that mean exposure of all other tissues
7 to that substance will cause oxidative stress
8 in those tissues?
9 A. Not necessarily.
10 Q. Does the body have protective
11 mechanisms that can limit tissue damage from
12 oxidative stress?
13 A. Yes.
14 Q. Do all substances that cause
15 oxidative stress also cause cancer?
16 A. I'm not sure the answer to that
17 question is known.
18 Q. Are there any studies or
19 publications that indicate that oxidative
20 stress is involved in the development of
21 ovarian cancer?
22 A. If I can define the term
23 "oxidative stress," I could give you an
24 answer to that, that question.

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1 Q. Why do you have to have a
2 special definition of "oxidative stress"?
3 I'm asking simply: Is there a publication or
4 a study which documents that oxidative stress
5 is involved in the development of ovarian
6 cancer?
7 MS. O'DELL: Object to the
8 form.
9 A. Sure.
10 BY MR. ZELLERS:
11 Q. And what paper are you going to
12 point me to?
13 A. Well, I'll point you to the
14 Ness paper to begin with, because it was one
15 of the earlier papers that related oxidative
16 stress from talc to the occurrence of ovarian
17 cancer. But the relationship between
18 inflammation, which essentially is the source
19 of the oxidative stress, and cancer goes all
20 the way back into the 19th Century in terms
21 of its proposal as a rationale.
22 Q. Is oxidative stress a variation
23 of inflammation as you're using that term
24 relating to a potential cause of ovarian

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1 cancer?
2 A. It's a component of
3 inflammation.
4 Q. As a toxicologist, how would
5 you define fibrous talc?
6 A. Fibrous talc is a form of talc
7 that is conformed into elongated structures
8 that have an aspect ratio of length greater
9 than width that is different from the
10 majority of talc which is the platy form.
11 Q. Do you consider yourself to be
12 an expert on fibrous talc?
13 A. No, I don't.
14 Q. Do you consider yourself to be
15 an expert on oxidative stress?
16 A. I have dealt a lot with issues
17 of oxidative stress and health effects
18 resulting from it.
19 Q. Do you consider yourself to be
20 an expert in oxidative stress?
21 MS. O'DELL: Objection, asked
22 and answered.
23 A. I'm not a specific expert in
24 oxidative stress, but I can -- I can opine

<p style="text-align: right;">Page 138</p> <p>1 regarding my professional understanding and 2 training. 3 BY MR. ZELLERS: 4 Q. You've never been involved in 5 terms of any research or publication on the 6 subject of oxidative stress and any 7 association with ovarian cancer, correct? 8 A. Not in terms of ovarian cancer, 9 no. 10 Q. You have not been involved in 11 any research or publication relating to the 12 subject of inflammation and its association 13 with ovarian cancer, correct? 14 A. No. All right. Yes, correct. 15 Q. Yes, it is correct? Okay. 16 You claim that the presence of 17 asbestos and fibrous talc further intensifies 18 the carcinogenic effect of talc; is that 19 right? 20 A. Yes. 21 Q. Is that statement different 22 from the statement directly above where you 23 allege that asbestos and mineral fibers 24 intensify the inflammatory response and</p>	<p style="text-align: right;">Page 140</p> <p>1 reports, the epidemiology first, is looking 2 at the relationship between perineal use of 3 dusting powders, talcum powders and ovarian 4 cancer. 5 Although there have been 6 efforts in some of those studies to 7 characterize the proportion or the 8 ingredients that would be either asbestos or 9 fibers, that's not done in all cases, and 10 it's not ruled out in any cases. 11 The -- also, the research 12 studies that have been performed, the 13 testing, for example, of the products 14 themselves are replete with reports of 15 components of these powders that are fibrous 16 in nature. 17 MR. ZELLERS: Move to strike as 18 nonresponsive. 19 BY MR. ZELLERS: 20 Q. Do you believe that all talcum 21 powder products that are on the market 22 contain asbestos? 23 MS. O'DELL: Object to the 24 form.</p>
<p style="text-align: right;">Page 139</p> <p>1 stimulate the cell growth and proliferation? 2 A. It's not different, no. 3 Q. Are your opinions dependent on 4 talc containing carcinogenic asbestos and/or 5 fibrous talc? 6 A. No. 7 Q. Do you believe that talcum 8 powder without asbestos causes ovarian 9 cancer? 10 A. I believe talcum powder causes 11 ovarian cancer. I have not seen any research 12 done on talcum powder that has been shown not 13 to contain asbestos. 14 Q. Your assumption that you have 15 made in formulating your opinions here is 16 that talcum powder contains asbestos; is that 17 right? 18 A. No. 19 Q. What assumption have you made 20 as to whether or not talcum powder contains 21 either asbestos or fibrous talc? 22 MS. O'DELL: Object to the 23 form. 24 A. Looking at the research</p>	<p style="text-align: right;">Page 141</p> <p>1 A. I don't know. 2 BY MR. ZELLERS: 3 Q. Does it matter to your opinion 4 as to whether or not the talcum powder 5 products, and particularly the talcum powder 6 products involved in this case, contain 7 asbestos? 8 A. I wouldn't have a way to be 9 able to answer that yes or no. 10 Q. Do you -- strike that. 11 Have you reached a conclusion 12 as to whether or not the talcum powder 13 products involved in this case contain 14 fibrous talc? 15 A. I think that most of them do. 16 Q. Does all of the talcum powder 17 contain fibrous talc or just some of it? 18 A. Certainly a lot of it does. 19 Q. The basis for your conclusion 20 that the talcum powder at issue in this case 21 contains fibrous talc is the testing reports 22 that plaintiffs' attorneys gave you? 23 MS. O'DELL: Object to the 24 form.</p>

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1 A. Yes. Also Longo's publications
 2 and reports.
 3 BY MR. ZELLERS:
 4 Q. You have reviewed the Longo
 5 reports; is that right?
 6 A. Yes.
 7 Q. Have you ever met with him?
 8 A. No.
 9 Q. Do you know his qualifications?
 10 A. I looked at his qualifications
 11 at one point, but I don't recall exactly what
 12 it is at this stage.
 13 Q. Ever hear of him before this
 14 lawsuit, your getting involved in the talc
 15 litigation back in October of 2018?
 16 A. No.
 17 Q. Have you reviewed any of
 18 Longo's testing where he did not find
 19 asbestos?
 20 A. I -- the only thing I've
 21 reviewed are what's present in those reports
 22 that I cited.
 23 Q. Were you provided by counsel
 24 for plaintiffs with any testing reports from

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1 Longo where he did not find asbestos?
 2 A. There are some of those listed
 3 in his reports.
 4 Q. Have you reviewed the FDA's
 5 testing of talcum powder products?
 6 A. The FDA didn't really do much
 7 testing of talcum powder products.
 8 Q. Have you reviewed the FDA's
 9 testing of talcum powder products?
 10 MS. O'DELL: Objection, vague.
 11 A. The only FDA testing that I
 12 looked at was the -- I have it referenced in
 13 my list, but the FDA, based on a
 14 recommendation, requested samples from
 15 various companies, I think nine different
 16 sources of talc. They received four and
 17 tested those. And based on their test method
 18 determined that there was not a -- not
 19 evidence of a significant hazard.
 20 BY MR. ZELLERS:
 21 Q. Have you made any effort to
 22 quantify the amount of any alleged
 23 contaminant in the Johnson & Johnson Consumer
 24 talcum powder?

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1 MS. O'DELL: Object to the
 2 form.
 3 A. That wasn't my charge. I defer
 4 to the other experts in this case.
 5 BY MR. ZELLERS:
 6 Q. Do you have an opinion on what
 7 type of asbestos you believe is in the talcum
 8 powder products at issue in this case?
 9 A. Well, there have been various
 10 types shown, but I think for the most part
 11 it's tremolite and anthophyllite.
 12 Q. Are you familiar with
 13 crocidolite?
 14 A. Yes.
 15 Q. Is crocidolite found in talcum
 16 powder or baby powder?
 17 A. It's not commonly found in it.
 18 Q. You believe that the
 19 asbestos -- types of asbestos that may be in
 20 the talcum powder at issue in this case is
 21 tremolite and acidolite [sic]?
 22 MS. O'DELL: Objection.
 23 A. Anthophyllite. There are
 24 others found, but you asked for most common.

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1 BY MR. ZELLERS:
 2 Q. Most common you believe are
 3 tremolite and anthophyllite?
 4 A. Anthophyllite.
 5 Q. Anthophyllite. Those two; is
 6 that right?
 7 A. Yes.
 8 Q. What types of asbestos are
 9 associated with ovarian cancer?
 10 A. Well, I'll go back to my list
 11 again. Crocidolite is associated with
 12 ovarian cancer in the Acheson report from
 13 1982, which was from female gas mask
 14 manufacturers in England who made gas masks
 15 during the period of the Second World War,
 16 and crocidolite is associated with that with
 17 a fairly high relative risk of 2.96.
 18 Chrysotile asbestos had also a positive
 19 relative risk of 1.74.
 20 There was a study of factory
 21 workers and pipe ladders in east London,
 22 which is the Berry report from 2000, that
 23 showed a relative risk of 2.53, and those
 24 workers were exposed to primarily asbestos

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1 cement products and plasters, so the --

2 Q. What type of asbestos, if you

3 know?

4 A. That would have been primarily

5 amphibole asbestos types, which would include

6 crocidolite and tremolite and anthophyllite,

7 amosite is in that category.

8 Bertolotti in 2008 published a

9 report -- actually, there were several

10 reports that resulted from the Eternit

11 factory studies in Casale Monferrato in

12 Italy, which was a plant that manufactured

13 cement sheet and corrugated tubing, and there

14 were a number of studies that showed elevated

15 relative risks in persons exposed to asbestos

16 in that work, and that would also have been

17 amphibole asbestos types.

18 Q. The studies that you've recited

19 for us, those are all occupational studies;

20 is that right?

21 A. Yes. I've got a lot more.

22 Q. Well, and it's on your list,

23 which we marked as Exhibit 15; is that right?

24 A. That's correct.

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1 Q. All right. Those studies did

2 not involve the perineal application of

3 talcum powder products; is that right?

4 MS. O'DELL: Object to the

5 form.

6 A. It was not a factor in the

7 study.

8 BY MR. ZELLERS:

9 Q. Crocidolite and chrysotile

10 asbestos has generally not been found in

11 talcum powder products, correct?

12 A. In general, that's the case.

13 Q. Was there ever a point in time

14 where you believe that the talcum powder

15 products involved in this case were not

16 contaminated with asbestos?

17 MS. O'DELL: Objection to form,

18 vague as to time.

19 A. My understanding is that Imerys

20 and their predecessors and Johnson & Johnson

21 made significant efforts to reduce components

22 of asbestos in their talc products over a

23 number of years and made step-wise progress

24 in doing that.

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1 But based on my current

2 understanding, I don't believe they've ever

3 been totally successful in doing so.

4 So in answer to your question,

5 which I think was, was there ever a point in

6 time where you believe the talcum powder

7 products involved in this case were not

8 contaminated with asbestos, no.

9 BY MR. ZELLERS:

10 Q. You cite in your report,

11 page 5, to two exhibits to the depositions of

12 John Hopkins and Julie Pier in support of

13 your opinion that talcum powder products

14 contain asbestos; is that right?

15 A. That's correct.

16 Q. Looking at page 5, footnote 1,

17 you cite to Exhibit Hopkins-28 in the Hopkins

18 deposition and Exhibit Pier-47 in the Pier

19 deposition; is that right?

20 A. That's correct.

21 Q. Are you aware that those

22 exhibits were created by plaintiffs' counsel?

23 MS. O'DELL: Objection to form.

24 A. I didn't -- I -- I don't know

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1 that and doesn't matter to me.

2 BY MR. ZELLERS:

3 Q. Do you know where the data in

4 those exhibits come from?

5 A. Well, they come from the two

6 persons who are testifying who have produced

7 them from their -- mostly from their business

8 records.

9 Q. Okay. So you believe that

10 Exhibit Hopkins-28 to the Hopkins deposition

11 and Exhibit Pier-47 to the Pier deposition

12 come from the business records of the

13 Johnson & Johnson Company and Imerys?

14 A. From the most part, there was

15 a -- there was a table that was constructed

16 during the deposition which was sort of a

17 piece of summary information. I don't know

18 if it's an exhibit to the deposition or if

19 it's something separate from that, but it

20 would not have been from business records,

21 but occurred at the deposition itself.

22 MS. O'DELL: Excuse me,

23 Dr. Carson, would you like to see a

24 copy of exhibit -- of the Hopkins

<p style="text-align: right;">Page 150</p> <p>1 Exhibit Hopkins-28 and Pier 2 Exhibit Pier-47 in answering these 3 questions? 4 THE WITNESS: If that's easy to 5 do, yes. 6 MS. O'DELL: It's very easy to 7 do. This is a copy of 8 Exhibit Hopkins-28 of the Hopkins 9 deposition and Exhibit Pier-47 of the 10 Pier deposition. 11 THE WITNESS: Okay. 12 BY MR. ZELLERS: 13 Q. Dr. Carson? 14 A. Yes, sir. 15 Q. Did you make any effort to 16 investigate the alternative explanations for 17 the data that's contained in those two 18 exhibits, Exhibit Hopkins-28 and 19 Exhibit Pier-47? 20 A. Alternative explanations, I'm 21 not sure what you mean by that. 22 Q. If the Johnson & Johnson 23 company -- companies' scientists and Imerys' 24 scientists opined that those tests don't</p>	<p style="text-align: right;">Page 152</p> <p>1 exhibits you're looking at, 2 Exhibit Hopkins-28 and Exhibit Pier-47, were 3 included in talcum powder product sold by J&J 4 Consumer Products? 5 MS. O'DELL: Objection to the 6 form, asked and answered. 7 A. No, I don't. 8 BY MR. ZELLERS: 9 Q. Have you confirmed -- strike 10 that. 11 What amount of asbestos 12 exposure is associated with ovarian cancer? 13 A. Any. 14 Q. Your testimony under oath is 15 that any asbestos exposure is associated with 16 ovarian cancer? 17 A. Any asbestos exposure and any 18 perineal application of talcum powder is 19 associated with an increased risk for ovarian 20 cancer. 21 Q. The amount of asbestos 22 contained -- or allegedly contained within 23 the baby powder is of no consequence, 24 correct?</p>
<p style="text-align: right;">Page 151</p> <p>1 actually show asbestos, you have no expertise 2 to dispute that, do you? 3 MS. O'DELL: Object to the 4 form. 5 A. No, I don't have any personal 6 expertise to dispute that. 7 BY MR. ZELLERS: 8 Q. Do you know whether or not any 9 of the talc product that is identified on 10 Exhibit Hopkins-28 and Exhibit Pier-47 was 11 actually used in the talcum powder products 12 that were sold by the Johnson & Johnson 13 Consumer Products company? 14 MS. O'DELL: Objection to form. 15 A. I -- it's my understanding that 16 some of these results, at least -- in 17 particular from the Pier deposition, that 18 some of these results were from testing that 19 was done on material that had already been 20 shipped and probably incorporated into 21 products. 22 BY MR. ZELLERS: 23 Q. Do you know whether or not any 24 of the talc that is referred to on the two</p>	<p style="text-align: right;">Page 153</p> <p>1 MS. O'DELL: Object to the 2 form. 3 A. No, it is of consequence, and a 4 larger dose would be a greater hazard. But 5 that doesn't mean that a low dose is not a 6 hazard. 7 BY MR. ZELLERS: 8 Q. My question is: Do you know 9 the amount of alleged asbestos exposure 10 that's associated with ovarian cancer? 11 A. No. 12 Q. Do you know the type of ovarian 13 cancer that asbestos is associated with? 14 MS. O'DELL: Object to the 15 form. 16 A. It's associated mostly with the 17 collection of epithelial ovarian cancers -- 18 BY MR. ZELLERS: 19 Q. What -- 20 A. -- primarily serous. 21 Q. Does the type of ovarian cancer 22 vary based upon the type of asbestos? 23 A. Not that I'm aware of. 24 Q. You believe that all types of</p>

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1 asbestos can produce all types of ovarian
 2 cancer; is that correct?
 3 MS. O'DELL: Object to the
 4 form.
 5 A. I suspect that some forms of
 6 asbestos are much more carcinogenic than
 7 others, and that would be true for the
 8 ovaries as well as other structures in the
 9 body.
 10 BY MR. ZELLERS:
 11 Q. Are you able to distinguish for
 12 us what types of asbestos cause or are
 13 associated with what types of ovarian cancer?
 14 A. I don't think I'm able to make
 15 those distinctions, but the studies I just
 16 read to you regarding the relationship
 17 between asbestos and ovarian cancer and the
 18 others on my list do indicate that there are,
 19 for example, in the Acheson study, there
 20 were -- there was a positive relationship
 21 between both crocidolite and chrysotile
 22 exposure, and the crocidolite had a greater
 23 effect on ovarian cancer than the chrysotile,
 24 but did not have -- they were both positive.

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1 Q. What type of ovarian cancer?
 2 A. That, I don't know at the
 3 moment. I could look in the paper and see if
 4 it's listed.
 5 Q. There are a number of different
 6 types of ovarian cancer; is that right?
 7 A. That's correct.
 8 Q. You are not familiar with J&J
 9 Consumer Products' procedures for milling or
 10 mining; is that right?
 11 MS. O'DELL: Object to the
 12 form.
 13 A. I'm familiar with some of their
 14 procedures, yes.
 15 BY MR. ZELLERS:
 16 Q. Are you familiar with their
 17 testing of source mines?
 18 A. To some extent.
 19 MS. O'DELL: Object to the
 20 form.
 21 BY MR. ZELLERS:
 22 Q. Is it set forth in your report,
 23 or is that just background information that
 24 you looked at?

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1 A. That's background information
 2 and my personal knowledge.
 3 Q. You are not going to give an
 4 opinion on mines, mining or milling in this
 5 case; is that right?
 6 A. Depends on the questions.
 7 Q. Well, as you sit here today, do
 8 you intend to give opinions on talc mining,
 9 mines or milling?
 10 A. It wasn't my intention, but if
 11 asked a question that I think I'm qualified
 12 to answer, I'll try to do it.
 13 Q. Are you an expert on talc
 14 mining and milling?
 15 A. I'm an expert on industrial
 16 processes in general, and if -- I have some
 17 personal understanding of talc mining and
 18 milling.
 19 Q. Have you been personally
 20 involved in talc mining and milling?
 21 A. I haven't been involved in it;
 22 I've observed it.
 23 Q. Do you consider yourself to be
 24 an expert in talc mining and milling?

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1 MS. O'DELL: Objection, asked
 2 and answered.
 3 A. No, I don't.
 4 BY MR. ZELLERS:
 5 Q. You have no independent basis
 6 to say that cosmetic talc contains asbestos,
 7 correct?
 8 MS. O'DELL: Object to the
 9 form.
 10 A. What do you mean by independent
 11 basis?
 12 BY MR. ZELLERS:
 13 Q. You have not done any testing
 14 of talcum powder to determine whether it
 15 contains asbestos or not; is that right?
 16 A. No. All of my understanding is
 17 based on other sources.
 18 Q. And those other sources would
 19 be, in part, the testing that was done by
 20 Longo; is that right?
 21 A. Yes, as well as the testing
 22 that's reported in the -- in the literature
 23 section as the Imerys test results and
 24 quality control materials.

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1 Q. You're looking now back at the
2 Pier Exhibit Pier-47 and the Hopkins
3 Exhibit Hopkins-28; is that right?
4 A. I was actually referring to the
5 Imerys documents that are referenced toward
6 the end of the literature exhibit to my
7 report, but certainly the Exhibit Pier-47
8 would be included there.
9 Q. You have no independent basis
10 to say that cosmetic talcum powder contains
11 fibrous talc, correct?
12 MS. O'DELL: Object to the
13 form.
14 A. I have no independent basis,
15 no.
16 BY MR. ZELLERS:
17 Q. You're familiar with the
18 limitations of the research on a potential
19 link between asbestos and ovarian cancer; is
20 that right?
21 MS. O'DELL: Object to the
22 form.
23 A. I'm familiar with some research
24 limitations in that question, yes.

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1 BY MR. ZELLERS:
2 Q. You agree that research on the
3 potential relationship between asbestos and
4 ovarian cancer has only considered a small
5 number of cases; is that right?
6 MS. O'DELL: Object to the
7 form.
8 A. Well, it's considered thousands
9 of cases. Certainly in terms of the number
10 of women who have experienced ovarian cancer
11 it's small, but it's significant, and that's
12 where we get research from that answers
13 important questions.
14 BY MR. ZELLERS:
15 Q. Are you familiar with the Reid
16 paper, 2011?
17 A. Yes, but it's been a while
18 since I've looked at it.
19 Q. Well, I'll hand you a copy.
20 We'll mark it as Exhibit 17.
21 (Carson Deposition Exhibit 17
22 marked.)
23 MS. O'DELL: Thank you.
24 ///

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1 BY MR. ZELLERS:
2 Q. The Reid paper that I've handed
3 you, what we've marked as Exhibit 17, looks
4 at the issue: Does exposure to asbestos
5 cause ovarian cancer.
6 Is that right?
7 A. Yes.
8 Q. They talk about in terms of
9 limitations on the first page, right-hand
10 column, they say: Studies that have examined
11 this issue have been limited for two major
12 reasons.
13 Is that right?
14 A. Yes.
15 Q. Number one, small number of
16 cases, much fewer women than men have been
17 exposed to asbestos, particularly in more
18 heavily exposed occupational settings where
19 relative risks are higher; is that right?
20 A. Yes.
21 Q. How many of these studies --
22 well, strike that.
23 Would you agree that the
24 studies in this area have been primarily

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1 related to occupational exposure?
2 A. Primarily, yes.
3 Q. How many total women have been
4 studied?
5 MS. O'DELL: Object to the
6 form. In this study, in this paper,
7 or are you talking about in general?
8 MR. ZELLERS: In general.
9 A. I don't know the answer to
10 that.
11 BY MR. ZELLERS:
12 Q. How many women have been
13 studied in nonoccupational studies?
14 A. Well, very few in comparison to
15 the occupational studies.
16 Q. Are you aware of the
17 difficulties that have existed over time in
18 distinguishing between peritoneal
19 mesothelioma and ovarian cancer?
20 A. Yes.
21 Q. What are those difficulties?
22 A. There is a potential
23 misclassification of one as the other because
24 they have very common habits. They look very

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1 similar under light microscopy, and they're
2 often difficult to distinguish, even by a
3 pathologist, unless special tests are used.
4 Often these cases occur in
5 places where they don't have the access to
6 special test equipment that can definitively
7 distinguish, and so they are classified and
8 we move on.
9 Q. Another limitation of any
10 studies in this area relate to the inability
11 to account for nonoccupational risk factors
12 for ovarian cancer other than age; is that
13 right?
14 MS. O'DELL: Object to the
15 form.
16 A. Are you reading also from this
17 paper or --
18 BY MR. ZELLERS:
19 Q. I was looking now at the
20 Camargo paper. Are you familiar with the
21 Camargo paper?
22 A. If you have a copy of that, I'd
23 like to look at it, if I'm going to answer
24 questions about it.

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1 Q. All right. This is a paper in
2 2011. We'll mark it as Exhibit 18.
3 (Carson Deposition Exhibit 18
4 marked.)
5 BY MR. ZELLERS:
6 Q. Here the authors also looked at
7 the issue of occupational exposure to
8 asbestos and ovarian cancer; is that right?
9 A. Yes.
10 Q. If you turn to page 216 -- I'm
11 sorry, 1216, second-to-last paragraph before
12 the conclusion: A further limitation of our
13 analysis was its inability to account for
14 nonoccupational risk factors for ovarian
15 cancer other than age.
16 Is that identified by the
17 authors as a limitation?
18 A. Yes, it is.
19 Q. Under -- if you go a page back,
20 1215, under Discussion, in the second
21 paragraph, the authors talk about other
22 studies that have been done in this area,
23 including Edelman; is that right?
24 MS. O'DELL: If you need to

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1 take a minute to refresh yourself on
2 the page --
3 MR. ZELLERS: I'm looking under
4 Discussion.
5 MS. O'DELL: -- please feel
6 free to do that.
7 Excuse me, sir, I was talking.
8 If you need to review the paper,
9 Dr. Carson, please feel free to do
10 that.
11 MR. ZELLERS: This doctor has
12 given 35 depositions. He is perfectly
13 capable of handling himself. He does
14 not need your advice as we go along.
15 MS. O'DELL: Nor do I, Michael.
16 So I'm going to deal with this witness
17 in the way I choose, which is
18 perfectly appropriate. If Dr. Carson
19 needs to review the paper, he's going
20 to review the paper. You may ask him
21 questions, he'll be happy to respond.
22 MR. ZELLERS: Your job is not
23 to coach the witness; your job is to
24 make objections as to form or

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1 foundation, not to make speaking
2 objections and coaching of the
3 witness.
4 MS. O'DELL: If you have a
5 question, I'm sure Dr. Carson would be
6 happy to address it.
7 MR. ZELLERS: I've asked him
8 the question.
9 MS. O'DELL: Would you mind
10 repeating the question, please?
11 MR. ZELLERS: Sure.
12 THE WITNESS: I don't remember
13 the question.
14 MR. ZELLERS: Okay. I'll be
15 happy to repeat it.
16 BY MR. ZELLERS:
17 Q. Dr. Carson, you've looked at
18 this Camargo paper; is that right?
19 A. Yes.
20 Q. In their discussion, they talk
21 about other research, including research done
22 by Edelman; is that right?
23 A. Are you at the top of the
24 middle column on --

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1 Q. I'm looking under Discussion.
 2 A. Yes.
 3 Q. The first -- well, the second
 4 paragraph.
 5 A. Second paragraph, yes.
 6 Q. The magnitude of the pooled
 7 estimate is similar to that reported by
 8 Edelman; is that right?
 9 A. Correct. Correct.
 10 Q. Then they state: They
 11 concluded, however, that despite the positive
 12 and significant association, there was
 13 insufficient information to infer that
 14 ovarian cancers were caused by occupational
 15 exposure to asbestos because of concerns
 16 about tumor misclassification, inappropriate
 17 comparison populations and the failure to
 18 take into account for known risk factors.
 19 Did I read that --
 20 A. You read that correctly.
 21 Q. All right. Are women who use
 22 talc perineally at greater risk of
 23 mesothelioma?
 24 A. I can't say that they are, but

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1 they may be.
 2 Q. Wouldn't you expect to find
 3 higher rates of other cancers in women using
 4 talc like mesothelioma if they are being
 5 exposed to substantial amounts of asbestos?
 6 A. Well, we may -- we may be
 7 seeing some mesotheliomas that are
 8 misclassified as ovarian cancers, or we may
 9 be seeing mesotheliomas and not relating talc
 10 application as a pertinent contributor to
 11 that case.
 12 Q. You told us earlier that you
 13 thought that there may have been more
 14 asbestos in talcum powders in the 1970s; is
 15 that right?
 16 MS. O'DELL: Objection to form.
 17 A. I think I said there have been
 18 step-wise improvements, and I -- but I agree
 19 with that statement.
 20 BY MR. ZELLERS:
 21 Q. Shouldn't we have seen higher
 22 rates of ovarian cancer in the earlier
 23 studies --
 24 MS. O'DELL: Object --

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1 BY MR. ZELLERS:
 2 Q. -- if your theory is correct?
 3 MS. O'DELL: Object to the
 4 form.
 5 A. There may have been higher
 6 rates of ovarian cancers, but you have to
 7 also understand that the latency period for
 8 ovarian cancer is pretty long. It's greater
 9 than 20 years, often as long as 40 years.
 10 And so we're still dealing with cancers that
 11 may have started back in the '70s.
 12 BY MR. ZELLERS:
 13 Q. Would you agree that exposure
 14 to asbestos through a perineal cosmetic talc
 15 use is different from the heavy occupational
 16 exposure that has primarily been researched?
 17 MS. O'DELL: Objection to form.
 18 A. Yes. I agree with that.
 19 BY MR. ZELLERS:
 20 Q. Are you an expert and
 21 knowledgeable about cleavage fragments?
 22 A. I'm not.
 23 Q. If I went through a series of
 24 questions and asked you to differentiate

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1 between cleavage fragments and asbestos
 2 fibers, you would defer that to other
 3 experts?
 4 A. I would.
 5 Q. You also claim that the
 6 presence of carcinogenic metals, including
 7 chromium, cobalt and nickel in talc, adds to
 8 its carcinogenicity; is that right?
 9 A. That is right.
 10 Q. Do you have an opinion or
 11 knowledge as to the amounts of chromium,
 12 cobalt and nickel, if any, in talc?
 13 A. Those metal elements are
 14 included as -- usually as impurities or in
 15 very small quantities in some deposits and
 16 are present in small amounts.
 17 Q. Do you have any idea how much
 18 of these metals, if any, reaches a woman's
 19 ovaries each time they use talc?
 20 A. I can't tell you how much, but
 21 I can tell you that some does, and it is --
 22 it remains in the talc until long after it
 23 reaches the ovaries.
 24 Q. Chromium, cobalt and nickel are

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1 natural elements; is that right?
 2 A. Yes.
 3 Q. They are naturally in our
 4 bodies; is that right?
 5 A. That's correct.
 6 Q. They are present in food,
 7 drinking water, bottled water, vitamins; is
 8 that right?
 9 A. To some extent.
 10 Q. Do you have any evidence that
 11 the blood or tissue levels of any trace heavy
 12 metals are higher in genital talc users
 13 compared to nonusers?
 14 MS. O'DELL: Object to the
 15 form.
 16 A. I do not.
 17 BY MR. ZELLERS:
 18 Q. As we discussed when we talked
 19 about asbestos, you cannot evaluate the
 20 potential effects of exposure to a substance
 21 without factoring in the amount of exposure;
 22 is that right?
 23 MS. O'DELL: Object to the
 24 form.

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1 A. It's useful to factor in the
 2 amount if the amount is known. If the amount
 3 is not known, it's not necessarily required
 4 to draw conclusions.
 5 BY MR. ZELLERS:
 6 Q. In this case, you do not know
 7 the amount, be it chromium, cobalt and/or
 8 nickel; is that right?
 9 MS. O'DELL: Objection to the
 10 form.
 11 Excuse me. Dr. Carson, as you
 12 know, is not being offered as a
 13 case-specific expert, so that question
 14 sounds like a specific patient, and so
 15 I would -- that's my objection.
 16 A. I do not know the amount, but
 17 my opinion is that any within the
 18 microenvironment of the inflammatory process
 19 that is occurring due to talc sequestration
 20 is contributing to the carcinogenic
 21 potential.
 22 BY MR. ZELLERS:
 23 Q. But you don't know for any
 24 individual plaintiff their level of exposure

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1 to chromium, cobalt or nickel or any other
 2 heavy metal; is that right?
 3 A. That is correct.
 4 Q. That answer to that question
 5 would be true if I asked you about the
 6 different fragrance chemicals, correct?
 7 MS. O'DELL: Object to the
 8 form.
 9 A. Also true.
 10 BY MR. ZELLERS:
 11 Q. You did a risk assessment in
 12 this matter; is that right?
 13 A. Yes.
 14 Q. Do you agree that a complete
 15 and proper risk assessment involves four
 16 elements?
 17 MS. O'DELL: Object to the
 18 form.
 19 A. Not necessarily.
 20 BY MR. ZELLERS:
 21 Q. Well, you have to identify a
 22 potential hazard; is that right?
 23 A. Yes.
 24 Q. You've got to do some type of

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1 dose-response assessment; is that right?
 2 A. Not necessarily.
 3 Q. You --
 4 MS. O'DELL: Excuse me. If you
 5 finished -- if you need to,
 6 Dr. Carson, if you're not finished.
 7 If you're finished, fine. Sorry.
 8 A. A qualitative risk assessment
 9 does not necessarily require a dose-response
 10 in order to reach valid conclusions.
 11 BY MR. ZELLERS:
 12 Q. It is not necessary to do a
 13 dose-response assessment as part of a risk
 14 assessment. Is that your testimony under
 15 oath?
 16 A. It's not always necessary.
 17 Q. Was it necessary in this case?
 18 A. Well, I think there is an
 19 aspect of dose-response that was performed in
 20 the risk assessment process here.
 21 Q. What dose-response assessment
 22 did you make with respect to chromium, cobalt
 23 and nickel and any other heavy metal?
 24 A. There's no information

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1 available to do a dose-response estimate for
 2 those metals.
 3 Q. What information did you rely
 4 or use, if any, to make a dose-response
 5 assessment with respect to any fragrance
 6 chemicals?
 7 MS. O'DELL: Objection, form.
 8 A. There is no information
 9 available to do a dose-response estimate for
 10 the fragrances.
 11 BY MR. ZELLERS:
 12 Q. Did you do any type of exposure
 13 assessment in this case?
 14 MS. O'DELL: Object to the
 15 form, vague.
 16 A. I'm not sure exactly what
 17 you're -- what you're asking by exposure
 18 assessment.
 19 BY MR. ZELLERS:
 20 Q. Well, an exposure assessment is
 21 also part of a risk assessment; is that
 22 right?
 23 A. In this risk assessment, I
 24 considered studies that are reported in the

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1 scientific and medical literature which have
 2 reported the assessment of exposure in these
 3 cases in various forms, and I considered
 4 those exposure assessments as being valid as
 5 reported and considered them as a whole.
 6 Q. Did you look at any exposure
 7 assessment specific to the alleged heavy
 8 metals contained in talcum powder?
 9 MS. O'DELL: Object to the
 10 form.
 11 A. No, I did not.
 12 BY MR. ZELLERS:
 13 Q. Did you look at any exposure
 14 assessment with respect to any fragrance
 15 chemicals contained within talcum powder?
 16 MS. O'DELL: Object to the
 17 form.
 18 A. With respect to the fragrance
 19 chemicals and the heavy metals, the only
 20 exposure assessment that I was able to do was
 21 verify that these things were present in
 22 materials.
 23 The fragrances are always
 24 present in whatever form they were added in,

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1 and the metals were there as the baseline
 2 component of the talc formation that they
 3 came from.
 4 BY MR. ZELLERS:
 5 Q. You do not know the amounts of
 6 either the heavy metals or the fragrance
 7 chemicals in the talcum powder at issue in
 8 this case, correct?
 9 A. That's -- that's correct, I
 10 don't.
 11 Q. You do not know -- well, strike
 12 that. I'll withdraw that.
 13 You brought with you an IARC
 14 monograph; is that right?
 15 A. I have a couple of them.
 16 Q. All right.
 17 MS. O'DELL: Are we going to --
 18 are you going to move to --
 19 MR. ZELLERS: We can take a
 20 break if you'd like.
 21 MS. O'DELL: Yeah, it's been
 22 about an hour and a half.
 23 MR. ZELLERS: Sure.
 24 THE VIDEOGRAPHER: We're off

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1 the record 12:32, end of Tape 2.
 2 (Recess taken, 12:32 p.m. to
 3 1:38 p.m.)
 4 THE VIDEOGRAPHER: We're on the
 5 record, 1:38, beginning of Tape 3.
 6 BY MR. ZELLERS:
 7 Q. Dr. Carson, when we left, we
 8 were talking about the trace metals and
 9 fragrance chemicals in talcum powder,
 10 correct?
 11 A. Yes.
 12 Q. You do not know how much of
 13 these trace metals or fragrance chemicals
 14 reach the ovaries, correct?
 15 A. I don't know specifically how
 16 much reaches it, but if I know it's a
 17 component of the talc, and if I know the talc
 18 reaches it, then I know some of the metals
 19 and the fragrances reach it.
 20 Q. You don't know the component or
 21 the amount of either the trace metals or the
 22 fragrance chemicals in the baby powder,
 23 correct?
 24 A. That's correct.

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1 Q. You do not know the exposure of
 2 any of the women who are plaintiffs in this
 3 litigation to the talcum powder, correct?
 4 MS. O'DELL: Individual women?
 5 MR. ZELLERS: Yes, individual
 6 women.
 7 A. I don't, no.
 8 BY MR. ZELLERS:
 9 Q. You brought with you an IARC
 10 monograph, and I think you've got several
 11 monographs that are on your literature list;
 12 is that right?
 13 A. That's correct.
 14 Q. Generally, IARC classifies
 15 chemicals and agents from Group 1,
 16 carcinogenic to humans, down to Group 4,
 17 probably not carcinogenic to humans; is that
 18 right?
 19 A. That's correct.
 20 Q. Does the classification of a
 21 substance as a known probable or possible
 22 carcinogen by IARC, and IARC is International
 23 Agency for Research on Cancer, or by the
 24 National Toxicology Program or the U.S.

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1 Environmental Protection Agency, mean that
 2 the substance can cause all types of cancers
 3 in humans by any exposure route?
 4 MS. O'DELL: Object to the
 5 form.
 6 A. No.
 7 BY MR. ZELLERS:
 8 Q. There are different cancers
 9 that may be associated with different
 10 chemicals or agents; is that right?
 11 A. And different routes of
 12 exposure.
 13 Q. You can have an agent that is a
 14 carcinogen or a probable or possible
 15 carcinogen for one type of cancer, but not
 16 for another type of cancer, correct?
 17 A. That's correct.
 18 Q. You can have an agent or a
 19 chemical that's a carcinogen for one route of
 20 exposure for a chemical or agent but is not
 21 carcinogenic for a different route of
 22 exposure, correct?
 23 MS. O'DELL: Objection to form.
 24 A. Yes.

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1 BY MR. ZELLERS:
 2 Q. What -- would you agree that,
 3 in general, metals can differ in their
 4 toxicity and potential carcinogenicity based
 5 on their form?
 6 A. Yes.
 7 Q. Do you know the forms of
 8 chromium, nickel and cobalt detected in
 9 cosmetic talc?
 10 A. There's -- metal ions are
 11 usually incorporated in the mineral lattice,
 12 and so they are part of the magnesium
 13 silicate crystal.
 14 Q. I'm not sure if that answers my
 15 question, and if it does, I don't understand,
 16 so let me ask again.
 17 Do you know the forms, and by
 18 that I mean valence state, of chromium or
 19 nickel or cobalt that have been detected in
 20 cosmetic talc?
 21 A. Oh, the valence state?
 22 Q. Yes, sir.
 23 A. I don't know specifically, but
 24 that's dependent on the surrounding structure

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1 that the metals are contained in, and metals
 2 can assume a different valence state
 3 depending on the redox environment.
 4 Q. You are not, at least in this
 5 litigation today, expressing any opinion as
 6 to the valence state of chromium that may be
 7 found in cosmetic talc, correct?
 8 MS. O'DELL: Object to the
 9 form.
 10 A. No, I'm not.
 11 BY MR. ZELLERS:
 12 Q. Your second opinion is that the
 13 perineal use of talcum powder results in
 14 direct exposure to the ovaries either via
 15 inhalation or migration through the female
 16 reproductive tract; is that right?
 17 A. Well, it's primarily through
 18 the female reproductive tract. The
 19 inhalation exposure would be a secondary
 20 route.
 21 Q. Let me ask you a couple of
 22 questions about inhalation exposure.
 23 You do not cite any studies in
 24 the body of your report evidencing that

<p style="text-align: right;">Page 182</p> <p>1 talcum powder can reach the ovaries through 2 inhalation, correct? 3 MS. O'DELL: Object to the 4 form. 5 A. That is correct, although 6 there -- yes, that's correct. 7 BY MR. ZELLERS: 8 Q. You have never performed any 9 study yourself pertaining to whether inhaled 10 talc can migrate to the ovaries; is that 11 right? 12 A. I have not, although it has 13 been used as an explanation of how talc 14 particles might have reached the ovaries in 15 persons who did not have another form of 16 exposure. 17 Q. If inhalation is the exposure 18 path for talc, shouldn't the lungs bear more 19 of a burden? 20 A. Yes. 21 Q. Why, then, isn't there an 22 epidemic of mesothelioma in women who use 23 talcum powder? 24 A. Because the primary route is</p>	<p style="text-align: right;">Page 184</p> <p>1 A. The -- I'm sorry. The Heller 2 study was talc, which I didn't cite here. 3 Halme was a retrograde menstruation study via 4 the fallopian tubes, and Sjösten was starch 5 particles. 6 Q. The only study -- and this is 7 not one that you cited, but you've now 8 referred to that involved talc, was Heller; 9 is that right? 10 A. Well, it looked at -- it didn't 11 look at transport inasmuch as it looked at 12 the presence of talc particles in the ovaries 13 and found them with or without the history of 14 talc powder use. 15 Q. Heller looked at 24 patients; 16 is that right? 17 A. I don't know, but that sounds 18 about right. 19 Q. Half of them had a history of 20 using talc products, half did not? 21 MS. O'DELL: Object to form. 22 A. That's correct. 23 BY MR. ZELLERS: 24 Q. Heller found talc in the</p>
<p style="text-align: right;">Page 183</p> <p>1 perineal via the reproductive tract. 2 Q. You discuss that on page 7 of 3 your report; is that right? 4 A. Yes. 5 Q. You cite a number of studies 6 for the proposition that talc can be 7 transported from the perineum to the upper 8 reproductive tract and body cavity; is that 9 right? 10 A. That's correct. 11 Q. None of the articles that you 12 cite actually looked at whether talc can 13 migrate from perineal application through the 14 fallopian tubes to the ovaries, did they? 15 A. Let me just refresh my memory 16 for a moment here. Egli was carbon black. 17 Venter was radioactive technetium labeled 18 albumin. Let me see. Blumenkrantz -- I have 19 my notes here. 20 Yeah, I can't remember what the 21 substance was in Blumenkrantz. Sjösten, 22 starch -- yeah, Blumenkrantz was retrograde 23 menstruation. Halme was talc. 24 Q. Which study was talc?</p>	<p style="text-align: right;">Page 185</p> <p>1 tissues of all 24 patients; is that right? 2 A. That is correct. 3 Q. I believe we covered this 4 before, but just to confirm: There are no 5 published articles that you're aware of that 6 show granulomas, fibrosis or adhesions 7 anywhere in the reproductive tract of a woman 8 as a result of external genital talc 9 application, correct? 10 MS. O'DELL: Object to the 11 form. 12 A. I believe that's the case, 13 although there have been granulomas found in 14 some cases of cancer where they reported 15 having used talc. 16 BY MR. ZELLERS: 17 Q. Of the cases or the studies you 18 cited here, Egli, that involved just three 19 women, correct? 20 A. That was just -- that was an 21 experimental study of the transport of carbon 22 particles. 23 Q. The women were in a lithotomy 24 position; is that right?</p>

<p style="text-align: right;">Page 186</p> <p>1 A. That's correct.</p> <p>2 Q. And that means that they had</p> <p>3 their legs up in the air, correct?</p> <p>4 A. Correct.</p> <p>5 Q. Those conditions -- well,</p> <p>6 strike that.</p> <p>7 They were injected with</p> <p>8 oxytocin; is that right?</p> <p>9 A. It is.</p> <p>10 Q. That was to aid in the</p> <p>11 transport of the particles, correct?</p> <p>12 MS. O'DELL: Object to the</p> <p>13 form.</p> <p>14 A. I believe that was the author's</p> <p>15 theory.</p> <p>16 BY MR. ZELLERS:</p> <p>17 Q. Those are different</p> <p>18 circumstances or conditions from a woman who</p> <p>19 would apply a talc to her genital area</p> <p>20 standing up, correct?</p> <p>21 A. Well, they are, but I'm not</p> <p>22 sure that that position is really pertinent</p> <p>23 to the migration of particles through the</p> <p>24 reproductive tract.</p>	<p style="text-align: right;">Page 188</p> <p>1 of all these studies -- that they were using</p> <p>2 various particles that could be detected at</p> <p>3 the other end, and so this was an attempt to</p> <p>4 do an experimental study which would cause no</p> <p>5 harm that would give them an answer regarding</p> <p>6 transport through the reproductive tract.</p> <p>7 Q. In this study, particles were</p> <p>8 introduced into the reproductive tract, not</p> <p>9 externally; is that right?</p> <p>10 MS. O'DELL: Object to the</p> <p>11 form.</p> <p>12 A. That is correct.</p> <p>13 BY MR. ZELLERS:</p> <p>14 Q. Women were given Pitocin to</p> <p>15 stimulate uterine contractions; is that</p> <p>16 right?</p> <p>17 A. That's the same as oxytocin.</p> <p>18 Q. And that's a yes, correct?</p> <p>19 A. Yes.</p> <p>20 Q. Again, as with the Egli study,</p> <p>21 the women were inverted in the Trendelenburg</p> <p>22 position with their head down, legs up when</p> <p>23 the particles were administered; is that</p> <p>24 right?</p>
<p style="text-align: right;">Page 187</p> <p>1 Q. Is it your pos- -- is it your</p> <p>2 testimony that if a woman is in a lithotomy</p> <p>3 position with their legs up into the air,</p> <p>4 that that is comparable with respect to the</p> <p>5 migration of talc to a woman who's standing</p> <p>6 up and using it in her perineal region?</p> <p>7 A. It may be.</p> <p>8 Q. Are you an expert on that?</p> <p>9 A. I'm not.</p> <p>10 Q. The authors in Egli, they</p> <p>11 stated it was possible that the study</p> <p>12 observed false positives due to sample</p> <p>13 contamination because they failed to use</p> <p>14 liquid or filter blanks as negative controls,</p> <p>15 correct?</p> <p>16 A. I don't recall that, but that</p> <p>17 may be the case.</p> <p>18 Q. You refer to a study by Venter.</p> <p>19 That involved a radioactive particulate</p> <p>20 matter, correct?</p> <p>21 A. Yes.</p> <p>22 Q. Did not involve talc particles,</p> <p>23 correct?</p> <p>24 A. The point of the study was --</p>	<p style="text-align: right;">Page 189</p> <p>1 A. I believe so.</p> <p>2 Q. Is it possible that the</p> <p>3 radionuclides can leach from the particles?</p> <p>4 A. I don't know the answer to</p> <p>5 that, but it was radioactive technetium that</p> <p>6 was bound to albumin.</p> <p>7 Q. The Sjösten study that you</p> <p>8 cite, that did not use -- involve the</p> <p>9 perineal use of talc, but an exam with a</p> <p>10 force to the cervix; is that right?</p> <p>11 A. Excuse me. An exam with what?</p> <p>12 Q. So it involved an exam with</p> <p>13 force to the cervix?</p> <p>14 MS. O'DELL: Object to the</p> <p>15 form.</p> <p>16 A. Well, this was -- this was done</p> <p>17 as an experimental study on women who were</p> <p>18 scheduled to get hysterectomies and they did</p> <p>19 it on some women one day prior to the</p> <p>20 hysterectomy and another group of women four</p> <p>21 days prior to the hysterectomy, and they used</p> <p>22 gloves that were powdered with starch and</p> <p>23 gloves that were not powdered with starch.</p> <p>24 And so they had what's called a</p>

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1 Latin square design, and they were able at
 2 the point of the hysterectomy of taking
 3 samples of the fallopian tubes and washing
 4 them to determine whether or not particles
 5 were found in the tubes.
 6 BY MR. ZELLERS:
 7 Q. What they actually found was
 8 that, whether the women were examined with
 9 gloves with the starch particles or not, they
 10 found starch particles in both, both groups,
 11 correct?
 12 A. It is true.
 13 Q. Tubal ligation, you refer to
 14 tubal ligation and use that or purport to say
 15 that that supports your migration theory,
 16 correct?
 17 A. It does.
 18 Q. Your testimony is that for
 19 patients who have had a tubal ligation, that
 20 they are at a lesser risk of the talc -- let
 21 me withdraw that.
 22 Explain to us very briefly why
 23 you believe that tubal ligation supports your
 24 migration theory.

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1 A. If the pathway of exposure of
 2 the ovaries that results in ovarian cancer is
 3 via the reproductive tract, then tubal
 4 ligation, which closes off the fallopian
 5 tubes, would interrupt that pathway and
 6 result in reduced exposure; therefore, you
 7 would expect a reduced incidence of cancer in
 8 those women.
 9 Q. In fact, though, that is not
 10 what has been reported or at least that has
 11 not been consistently reported in the
 12 studies; is that right?
 13 A. Well, it actually has been a
 14 positive factor in a number of the
 15 epidemiologic studies that have looked at the
 16 ovarian cancer incidence and have been able
 17 to include tubal ligation as a historical
 18 factor in their analysis.
 19 Q. Did you look at the Terry 2013
 20 meta-analysis?
 21 A. Yes.
 22 Q. You cite that in support of
 23 your positions in this case; is that right?
 24 A. I did.

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1 Q. In fact, in Terry -- well, and
 2 let me mark it for you so you've got it in
 3 front of you.
 4 THE WITNESS: Okay. I'm going
 5 to move this binder for the time
 6 being, if you don't mind.
 7 MR. ZELLERS: Oh, yes, I'll
 8 hand you the articles that I refer to,
 9 but if you need it, just pull it out.
 10 THE WITNESS: Thank you.
 11 (Carson Deposition Exhibit 19
 12 marked.)
 13 BY MR. ZELLERS:
 14 Q. Deposition Exhibit 19 is the
 15 2013 Terry meta-analysis that you referred to
 16 in your report; is that right?
 17 A. Yes.
 18 Q. That's a pooled analysis of
 19 eight studies; is that right?
 20 A. Yes.
 21 Q. Okay. This pooled analysis of
 22 eight studies relating to genital powder use
 23 and the risk of ovarian cancer shows no
 24 variation in the risk in talc users based on

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1 whether they had a tubal ligation or
 2 hysterectomy; is that right?
 3 A. I think that's the conclusion
 4 of the authors here, but it's not the
 5 conclusion of the individual authors of the
 6 studies who did the original investigations.
 7 Q. Well, it is the conclusion of
 8 the authors based upon their meta-analysis of
 9 eight studies; is that right?
 10 MS. O'DELL: Object to the
 11 form.
 12 A. Let me just check that.
 13 (Document review.)
 14 A. Yes.
 15 BY MR. ZELLERS:
 16 Q. If you look at pages 819,
 17 carried over to 820, I'm reading: Our
 18 finding of slightly attenuated associations
 19 following exclusion of women with powder
 20 exposure after tubal ligation or hysterectomy
 21 are not supportive of this hypothesis, but
 22 risk estimates in this subgroup analysis may
 23 have randomly differed from those including
 24 all women because of the reduction in sample

<p style="text-align: right;">Page 194</p> <p>1 size.</p> <p>2 Is that right?</p> <p>3 A. Yes.</p> <p>4 Q. Essentially, looking at these</p> <p>5 eight studies in this meta-analysis, Terry</p> <p>6 did not find that exposure to genital powder</p> <p>7 applications that occurred before tubal</p> <p>8 ligation or hysterectomy made any substantive</p> <p>9 difference in the results; is that right?</p> <p>10 A. Yes, but the point is that the</p> <p>11 authors didn't find that it did not make a</p> <p>12 difference either. They -- they ended up</p> <p>13 with a study with reduced numbers that they</p> <p>14 couldn't make determinations about.</p> <p>15 Q. If, though, the migration</p> <p>16 theory is correct, you would expect that</p> <p>17 there would be a reduction in the incidence</p> <p>18 of ovarian cancer for women who have had a</p> <p>19 tubal ligation or hysterectomy; is that</p> <p>20 right?</p> <p>21 MS. O'DELL: Object to the</p> <p>22 form.</p> <p>23 A. Yes, that is correct.</p> <p>24 ///</p>	<p style="text-align: right;">Page 196</p> <p>1 THE WITNESS: Thank you.</p> <p>2 MS. O'DELL: Thank you.</p> <p>3 BY MR. ZELLERS:</p> <p>4 Q. This is also a study,</p> <p>5 Exhibit 20, Cramer 2016, that you cite as</p> <p>6 supportive of your opinions in this case,</p> <p>7 correct?</p> <p>8 A. Correct.</p> <p>9 Q. Cramer actually looked at</p> <p>10 whether or not there was any greater</p> <p>11 association of talc use and ovarian cancer</p> <p>12 and whether or not women who had a tubal</p> <p>13 ligation or hysterectomy had a reduced</p> <p>14 incidence of the disease; is that correct?</p> <p>15 A. Yes.</p> <p>16 Q. Turn to page 337, and then it</p> <p>17 carries over to 339. They're talking --</p> <p>18 they, being the authors -- of their results,</p> <p>19 and I'm reading just at the very bottom of</p> <p>20 337, carried over to 339: By test for</p> <p>21 interaction, column 3, the association was</p> <p>22 significantly greater for women who were</p> <p>23 African-American, had no personal history of</p> <p>24 breast cancer, had a tubal ligation or</p>
<p style="text-align: right;">Page 195</p> <p>1 BY MR. ZELLERS:</p> <p>2 Q. And that was not found in the</p> <p>3 Terry meta-analysis that you cite; is that</p> <p>4 right?</p> <p>5 MS. O'DELL: Object to the</p> <p>6 form.</p> <p>7 A. That is correct, but it was</p> <p>8 found in the baseline studies that were, in</p> <p>9 part, included in this meta-analysis.</p> <p>10 BY MR. ZELLERS:</p> <p>11 Q. Are you -- you also cite the</p> <p>12 Cramer study, 2016; is that right?</p> <p>13 A. Yes.</p> <p>14 Q. I've got a few questions for</p> <p>15 you on the Cramer study, but let me just ask,</p> <p>16 since we're at this part right now.</p> <p>17 Do you have the Cramer study?</p> <p>18 I'll hand it to you.</p> <p>19 A. If you have a copy, I'd</p> <p>20 appreciate it.</p> <p>21 MR. ZELLERS: Sure. We'll mark</p> <p>22 the Cramer study as Exhibit 20.</p> <p>23 (Carson Deposition Exhibit 20</p> <p>24 marked.)</p>	<p style="text-align: right;">Page 197</p> <p>1 hysterectomy.</p> <p>2 Is that right?</p> <p>3 MS. O'DELL: Object to the</p> <p>4 form.</p> <p>5 A. Beginning on page 337?</p> <p>6 BY MR. ZELLERS:</p> <p>7 Q. Yes.</p> <p>8 A. I'm sorry, if you could --</p> <p>9 Q. Sure. At the very end of 337.</p> <p>10 A. Okay.</p> <p>11 Q. So they're looking at --</p> <p>12 A. Oh, by tests for interaction.</p> <p>13 Q. Yes.</p> <p>14 A. Yeah.</p> <p>15 Q. So if your migration theory is</p> <p>16 correct, you would expect there to be a lower</p> <p>17 incidence of ovarian cancer in women who have</p> <p>18 had a tubal ligation or hysterectomy,</p> <p>19 correct?</p> <p>20 MS. O'DELL: Object to the</p> <p>21 form.</p> <p>22 A. That is correct.</p> <p>23 BY MR. ZELLERS:</p> <p>24 Q. All right. Cramer finds by</p>

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1 test for interaction the association was
 2 significantly greater for women who -- and
 3 then I'm skipping African-American, but I'm
 4 coming down to -- have a tubal ligation or
 5 hysterectomy.
 6 Is that correct?
 7 A. Yes.
 8 Q. All right. If talcum powder
 9 migrates from the perineal region to the
 10 ovaries, shouldn't exposure to -- exposure to
 11 talc be far greater in concentration in the
 12 rectal, vulvar, vaginal, cervical and uterine
 13 tissues which are closer to the area of
 14 initial exposure?
 15 MS. O'DELL: Objection to form.
 16 A. Well, the acute exposure would
 17 be greater.
 18 BY MR. ZELLERS:
 19 Q. You would expect because the
 20 acute exposure is greater, that there should
 21 be inflammation caused in these organs and
 22 areas, correct?
 23 A. No. The inflammation and
 24 oxidative stress is an ongoing process that

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1 has to develop over time, and it occurs on a
 2 chronic basis in areas where foreign bodies
 3 locate and reside. And talc and talcum
 4 powder are examples of foreign bodies that
 5 have the right characteristics to cause
 6 chemotaxis in reactive oxygen species and
 7 oxidative status.
 8 Q. Well, in fact, there would be
 9 chronic exposure, so if we're dealing with,
 10 as you described in the very beginning, which
 11 you were asked, to look at the habitual use
 12 of talcum powder, that would create exposure
 13 on a chronic basis to the rectal area and
 14 tissues, vulvar, vaginal, cervical and
 15 uterine tissues; is that right?
 16 MS. O'DELL: Object to the
 17 form.
 18 A. I suspect if one doesn't bathe,
 19 that would be more of an issue, but most
 20 people bathe regularly as well.
 21 BY MR. ZELLERS:
 22 Q. And bathing regularly
 23 eliminates any exposure in the rectal,
 24 vulvar, vaginal, cervical and uterine tissues

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1 to talcum powder?
 2 MS. O'DELL: Object to the
 3 form.
 4 A. It doesn't -- it doesn't
 5 eliminate exposure, but it does remove
 6 residual exposure, as does sweating, other
 7 body secretions and so forth.
 8 BY MR. ZELLERS:
 9 Q. Are you aware of any studies
 10 that show inflammation or oxidative stress as
 11 a result of genital talc use in the rectal,
 12 vulvar, vaginal, cervical and uterine
 13 tissues?
 14 A. No, I'm not.
 15 Q. Under your theory or belief
 16 that talcum powder travels from the perineal
 17 region to the ovaries through the woman's
 18 reproductive tract, talcum powder must travel
 19 past the labia, through the vagina, through
 20 the cervix, and then to the uterus; is that
 21 right?
 22 A. That's correct.
 23 Q. And then the powder travels
 24 through the uterus and into the fallopian

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1 tubes to reach the ovaries; is that right?
 2 A. Yes.
 3 Q. On what studies are you relying
 4 to say that talcum powder affects the body
 5 differently when it's applied to the perineal
 6 region and travels to the cervix compared to
 7 when it is applied directly to the cervix?
 8 A. I don't think --
 9 MS. O'DELL: Object to the
 10 form.
 11 A. -- there is much of a
 12 difference.
 13 BY MR. ZELLERS:
 14 Q. You would expect there to be a
 15 comparable similar result whether talcum
 16 powder is applied directly to the cervix
 17 through the use of dusting of a diaphragm as
 18 there is to the use of talcum powder in the
 19 genital areas; is that right?
 20 A. That is correct. I think the
 21 two differ probably in terms of quantity very
 22 significantly. But other than that, they
 23 would be the same.
 24 Q. When applied to the perineal

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1 region, talcum powder would also be in close
 2 contact with a woman's urethra; is that
 3 right?
 4 A. Yes.
 5 Q. Substances, and in your view,
 6 talcum powder, are capable of traveling up
 7 the urethra; is that right?
 8 MS. O'DELL: Object to the
 9 form.
 10 A. The urethra has a sphincter
 11 which prevents transport beyond that point.
 12 BY MR. ZELLERS:
 13 Q. Women get urinary tract
 14 infections when bacteria travels up the
 15 urethra; is that right?
 16 A. That's correct.
 17 Q. Studies, though, do not show an
 18 increase in bladder cancer with talcum powder
 19 use; is that right?
 20 A. I don't believe that talcum
 21 powder transports in any appreciable amount
 22 up the urethra into the bladder.
 23 Q. Studies do not show an increase
 24 in rectal cancer with talcum powder use, do

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1 they?
 2 A. No.
 3 Q. Are you aware that that IARC --
 4 and you're familiar with IARC, right?
 5 A. Yes.
 6 Q. Are you aware that IARC rejects
 7 this migration theory and calls the evidence
 8 weak?
 9 MS. O'DELL: Object to the
 10 form.
 11 A. The IARC has made that
 12 statement in their -- I think the 2006 review
 13 that resulted in their recent monograph, but
 14 I think they're about to reconsider that.
 15 BY MR. ZELLERS:
 16 Q. Well, they also have stated
 17 that in 2010; is that right?
 18 A. Well, that's the --
 19 MS. O'DELL: Object to the
 20 form.
 21 A. That's the monograph from the
 22 2006 review.
 23 BY MR. ZELLERS:
 24 Q. Why do you believe that they're

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1 about to reconsider that?
 2 A. Because the chatter is that
 3 this is something that's on their radar
 4 screen currently.
 5 Q. What chatter are you aware of?
 6 And what is chatter?
 7 A. It's discussion among -- within
 8 the scientific and healthcare community of
 9 things that are on the drawing board for
 10 IARC.
 11 Q. Do you know whether or not
 12 IARC -- well, strike that.
 13 IARC has not changed its
 14 position that the migration theory and
 15 evidence for the migration theory is weak; is
 16 that right?
 17 MS. O'DELL: Object to the
 18 form.
 19 A. They have not changed their
 20 position that was published in the 2010
 21 monograph.
 22 BY MR. ZELLERS:
 23 Q. All right. You have heard
 24 chatter that they may look at it again; is

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1 that right?
 2 A. Yes.
 3 Q. Other than this chatter, you're
 4 unaware of any other -- well, strike that.
 5 You're unaware of any change in
 6 IARC's position with respect to migration,
 7 correct?
 8 A. Well, an example of what I'm
 9 talking about is the Health Canada report,
 10 which has contradicted what is found in the
 11 IARC monograph and is more current and
 12 considers information that will probably go
 13 into the next IARC review.
 14 MR. ZELLERS: Move to strike as
 15 nonresponsive.
 16 BY MR. ZELLERS:
 17 Q. Does IARC review and rely on
 18 draft assessments in formulating their
 19 positions?
 20 A. IARC relies on primary studies.
 21 Q. Not draft assessments, correct?
 22 A. Well, the draft assessment that
 23 I guess you're referring to, the Health
 24 Canada draft assessment, is derived from

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1 primary studies, the same ones that will be
 2 considered by IARC.
 3 Q. All right. As of today, IARC's
 4 published position is that evidence of a
 5 migration theory of talcum powder migrating
 6 to the ovaries is weak, correct?
 7 A. Yes.
 8 Q. Have you conducted any tests or
 9 experiments with respect to your theory or
 10 position that talc migrates to the ovaries
 11 through the reproductive tract?
 12 A. No, I haven't.
 13 Q. How much talc actually reaches
 14 the ovaries in your opinion?
 15 A. I can't answer that question
 16 because the dose has not been quantified.
 17 Q. Does it only reach the ovaries
 18 during certain times?
 19 A. I don't believe so. I think
 20 there are many circumstances whereby that
 21 migration pathway is functional, and in my
 22 belief, the pathway from the perineum to the
 23 cervix is pretty much an open channel, and
 24 then it continues to be open pretty much all

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1 the way into the pelvic cavity.
 2 Q. You are not a specialist in
 3 women's health issues, correct?
 4 MS. O'DELL: Object to the
 5 form.
 6 A. Well, I'm a doctor. I've
 7 examined a lot of women.
 8 BY MR. ZELLERS:
 9 Q. Are you --
 10 MS. O'DELL: Excuse me. Are
 11 you finished, sir?
 12 THE WITNESS: Yes, I'm
 13 finished.
 14 MS. O'DELL: Okay.
 15 BY MR. ZELLERS:
 16 Q. Are you an expert in the
 17 women's reproductive tract?
 18 A. I've taken it apart and put it
 19 back together again in medical school, and in
 20 other settings I've done OB/GYN rotations.
 21 I've participated in pelvic surgeries. I
 22 understand the anatomy.
 23 Q. There are physicians who are
 24 specialists in the female reproductive tract;

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1 is that right?
 2 A. That is correct.
 3 Q. You are not one of those
 4 physicians, correct?
 5 A. I don't claim to be a
 6 specialist in gynecology.
 7 Q. Your third opinion is that the
 8 ovaries lack an intrinsic elimination system;
 9 is that right?
 10 A. That's correct.
 11 Q. Is "intrinsic elimination
 12 system" a recognized term of art that's used
 13 by gynecologists?
 14 A. I don't think so. It was just
 15 the term I used to describe the situation.
 16 Q. Is "intrinsic elimination
 17 system" a term of art used by oncologists?
 18 A. The same answer.
 19 Q. Have you seen published studies
 20 that use that term?
 21 A. I don't know. I suspect I
 22 could have. It's apparently a small number
 23 of ways to describe that in a few words.
 24 Q. You do not cite to any studies

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1 in the body of your report to support your
 2 theory that the ovaries do not have an
 3 intrinsic elimination system, correct?
 4 A. That's correct.
 5 Q. You have not conducted any
 6 tests to show that exposure to the ovaries to
 7 particulate matter, if any, is longer than
 8 exposure to other parts of the female
 9 anatomy; is that right?
 10 MS. O'DELL: Object to the
 11 form.
 12 A. I have not conducted any such
 13 tests.
 14 BY MR. ZELLERS:
 15 Q. Is the cervix more or less
 16 sensitive to the impact of foreign particles
 17 than the ovaries?
 18 MS. O'DELL: Object to the
 19 form.
 20 A. I think that the important
 21 point is the residence time that exists, and
 22 the cervix is not presented with things for
 23 an extended time like the ovaries are in
 24 relation to things like talc. But it is

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1 sensitive.
 2 BY MR. ZELLERS:
 3 Q. All right. Your fourth
 4 theory -- or strike that.
 5 Your fourth opinion is that the
 6 epidemiological studies show a positive
 7 relationship between regular perineal
 8 application of talcum powder and ovarian
 9 cancer; is that right?
 10 A. That's correct.
 11 Q. The studies that you reference
 12 in this opinion are referred to on pages 6
 13 and 7 of your report; is that right?
 14 MS. O'DELL: Object to the
 15 form.
 16 A. Most of them, yes.
 17 BY MR. ZELLERS:
 18 Q. You conclude that when
 19 confounding and bias are exhaustively
 20 considered -- and do you believe you've done
 21 that here?
 22 A. I am restating what authors of
 23 the primary studies have done. I'm
 24 evaluating the consistency of the evidence,

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1 not the basic evidence itself.
 2 Q. The apparent cause and effect
 3 relationship between perineal talcum powder
 4 use and ovarian cancer amounts to about a 30%
 5 increased risk of ovarian cancer in talcum
 6 powder users.
 7 Is that your opinion in this
 8 case?
 9 A. It is.
 10 Q. And that is your opinion from
 11 reviewing the epidemiologic studies that you
 12 cite in your report?
 13 A. Yes.
 14 Q. When epidemiologists refer to
 15 the statistical power of a study, what are
 16 they referring to?
 17 A. Statistical power refers to the
 18 ability of a study design, if carried out, to
 19 detect a signal in the data of a particular
 20 magnitude.
 21 Q. In plain English, statistical
 22 power is the likelihood that a study will
 23 detect an effect when there is an effect to
 24 be detected; is that fair?

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1 A. Yes.
 2 MS. O'DELL: Object to the
 3 form.
 4 BY MR. ZELLERS:
 5 Q. Are you familiar with the term
 6 "person-years" as it relates to
 7 epidemiological study?
 8 A. Yes, I am.
 9 Q. What is -- strike that.
 10 How are person-years
 11 calculated?
 12 A. They are calculated by -- in
 13 relation to an exposure or to an existing
 14 treatment, they're calculated by multiplying
 15 the duration of the treatment or exposure in
 16 years by the number of people being studied.
 17 And that -- the result is person-years.
 18 Q. Can you explain the difference
 19 between high-grade serous and low-grade
 20 serous cancer?
 21 A. High-grade serous cancer has
 22 a -- is less differentiated and has a greater
 23 propensity for metastasis and invasion.
 24 Q. Are you aware that the

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1 epidemiological literature shows that these
 2 are very different cancers?
 3 A. They behave quite differently,
 4 yes.
 5 Q. Do you know what publication
 6 bias is?
 7 A. Yes.
 8 Q. What is publication bias?
 9 A. Publication bias is the
 10 tendency to -- to spin a certain argument
 11 in -- in order to influence acceptance of
 12 publications.
 13 Q. Is that a recognized issue in
 14 the field of epidemiology, at least as you've
 15 observed?
 16 A. It's a -- it's not necessarily
 17 recognized in the field of epidemiology. It
 18 exists in all scientific endeavors.
 19 Q. Is it something that you and
 20 other physicians and experts and scientists
 21 need to be aware of?
 22 A. Yes. I think we're all exposed
 23 to the effects of that and warned about it as
 24 we go through our careers.

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1 Q. When I asked you early on what
 2 your methodology was, you looked at the
 3 published literature, you looked at some
 4 websites I think that you told us about
 5 earlier, and then you performed a risk
 6 assessment and considered whether perineal
 7 use of talc products poses a safety risk to
 8 consumers; is that right?
 9 MS. O'DELL: Object to the
 10 form.
 11 A. Well, that's a gross
 12 oversimplification of the risk assessment
 13 process that I performed.
 14 The review of the literature,
 15 which was based on the question that I was
 16 asked to address, was a fairly exhaustive one
 17 which incorporated a search for every
 18 pertinent publication that was available and
 19 included multiple languages.
 20 It then was -- proceeded into a
 21 distillation of the facts that were -- that
 22 were claimed based on those individual
 23 studies and investigations, and a comparison
 24 of those, one with another, eventually

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1 considering them all as a whole to arrive at
 2 conclusions that addressed the question.
 3 BY MR. ZELLERS:
 4 Q. That was your methodology; is
 5 that right?
 6 A. That is the methodology, yes.
 7 Q. Did you consider the Bradford
 8 Hill criteria or factors in reaching your
 9 conclusions and opinions in this matter?
 10 A. That's part of the methodology
 11 which is outlined in my report.
 12 Q. In analyzing the Bradford Hill
 13 criteria, did you conduct a meta-analysis of
 14 the available data to reach a conclusion
 15 about the relative risk?
 16 A. No, I did not.
 17 Q. Why didn't you conduct a
 18 meta-analysis for this case?
 19 A. I did not have the time to do a
 20 meta-analysis in this case, first of all.
 21 Secondly, there have been a number of other
 22 meta-analyses performed, and I had those
 23 results available to me in addition to
 24 various reviews of the literature that have

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1 been published as well. And I felt that was
 2 sufficient to be able to produce this report
 3 that addressed the question I was asked.
 4 Q. As you told us earlier, you
 5 have never published a meta-analysis on any
 6 topic; is that right?
 7 A. That's correct.
 8 Q. You cite to some of the
 9 available studies on talcum powder use in
 10 ovarian cancer, but not to all of the
 11 studies, correct?
 12 MS. O'DELL: Object to the
 13 form.
 14 A. That's true.
 15 BY MR. ZELLERS:
 16 Q. What was your reasoning for
 17 focusing on certain studies and excluding
 18 other studies?
 19 A. The studies that I referenced
 20 were those that had specific aspects that
 21 directly influenced my report or my
 22 conclusions or that I felt were illustrative
 23 of comments I was making in the report, and
 24 that's why they were referenced.

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1 All of the studies may not have
 2 risen to that -- the level of requiring being
 3 referenced, but pretty much all the studies
 4 are included in the literature that I
 5 reviewed.
 6 Q. You cite in the report the
 7 studies that were favorable or supportive of
 8 your opinions, correct?
 9 A. Well, I cited a number of
 10 studies, not all of which were favorable to
 11 my overall opinions, at least not on the
 12 surface.
 13 Q. Did you cite all of the studies
 14 that you believe in one way or another
 15 support your opinions in this case?
 16 A. I don't think so.
 17 Q. You believe there are
 18 additional studies that support your opinions
 19 that you did not cite?
 20 A. They're in the literature list.
 21 Q. Did you cite the opinions that
 22 refuted -- strike that.
 23 Did you cite the studies that
 24 refuted your opinions in this matter?

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1 A. I cited some studies that had
 2 opinions that -- or that had conclusions that
 3 did not necessarily agree with mine, but I
 4 don't think they refuted my conclusions.
 5 Q. Do you believe the standard for
 6 proving causation in the scientific
 7 literature is the same one that applies in
 8 this litigation?
 9 MS. O'DELL: Object to the
 10 form.
 11 A. I don't know that.
 12 BY MR. ZELLERS:
 13 Q. A document you brought here
 14 today was an FDA letter?
 15 A. Yeah, I think you marked it.
 16 Q. I did mark it. Why don't you
 17 see if you could find it so I can ask you a
 18 couple of questions about it.
 19 A. There it is. That one?
 20 Q. Yes. Exhibit 10 is an FDA
 21 letter dated April 1st of 2014 to a
 22 Dr. Epstein; is that right?
 23 A. Yes.
 24 Q. That is a document that you

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1 reviewed and considered as part of your
 2 analysis of this case; is that right?
 3 A. Yes.
 4 Q. Do you believe that that
 5 exhibit, Exhibit 10, is supportive of your
 6 opinions in this matter?
 7 A. I don't think it's very
 8 supportive. It's -- it's in response to a
 9 proposal from a citizens voluntary agency to
 10 provide more stringent labeling on talcum
 11 powder products, and the agency rejected
 12 the -- that petition.
 13 Q. The FDA is the regulatory body
 14 in the United States that oversees food, drug
 15 and cosmetics; is that right?
 16 MS. O'DELL: Object to the
 17 form.
 18 A. Yes.
 19 BY MR. ZELLERS:
 20 Q. This letter -- strike that.
 21 In this letter the FDA goes
 22 through and analyzes some of the Bradford
 23 Hill factors; is that right?
 24 A. I'd have to look at this in

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1 more detail to be able to answer that
 2 specifically.
 3 Q. Well, essentially, based upon
 4 its analysis as of 2014, the FDA concluded
 5 that causation had not been established as
 6 between genital talcum powder use and ovarian
 7 cancer or an increased risk of ovarian
 8 cancer, correct?
 9 A. Well, it said that an updated
 10 review failed to identify any new compelling
 11 literature data or new scientific evidence.
 12 I don't think they indicate here that they
 13 actually did a standard review of that
 14 literature.
 15 Q. Well, take a look, if you will,
 16 at page 4. The FDA sets forth its
 17 epidemiology and etiology findings; is that
 18 right?
 19 A. Yes.
 20 Q. The FDA has a number of very
 21 capable physicians, scientists,
 22 toxicologists, pharmacologists and medical
 23 professionals; is that right?
 24 MS. O'DELL: Object to the

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1 form.
 2 A. I don't know if they're still
 3 working, but they have good people on staff.
 4 BY MR. ZELLERS:
 5 Q. And just so, a year or two or
 6 three, if this transcript is ever reviewed,
 7 we are in the midst of a shutdown of at least
 8 portions of the government; is that right?
 9 A. That's correct.
 10 Q. And that is what your comment
 11 was directed to, correct?
 12 A. That is correct.
 13 Q. On page 4 the FDA states:
 14 After consideration of the scientific
 15 literature submitted in support of both
 16 citizens' petitions, FDA found.
 17 And then, number 2, that
 18 several of the studies acknowledge biases in
 19 the study design and no single study has
 20 considered all the factors that potentially
 21 contribute to ovarian cancer, including
 22 selection bias and/or uncontrolled
 23 confounding that result in spurious positive
 24 associations between talc use and ovarian

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1 cancer risk.
 2 Did I read that correctly?
 3 A. You did read it correctly.
 4 Q. Does that appear to be at least
 5 one of the conclusions of the FDA after
 6 considering the scientific literature as of
 7 early 2014?
 8 MS. O'DELL: Object to the
 9 form.
 10 A. Yes, that is listed as an FDI
 11 finding -- FDA finding.
 12 BY MR. ZELLERS:
 13 Q. The FDA noted that a
 14 dose-response -- strike that.
 15 The FDA noted that
 16 dose-response evidence is lacking; is that
 17 right?
 18 A. A dose-response --
 19 Q. Two things. The FDA notes that
 20 there's a lack of consistency in the study
 21 results, correct?
 22 MS. O'DELL: Where are you
 23 reading? I'm sorry.
 24 MR. ZELLERS: I'm looking at

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1 Conclusion 3.
 2 THE WITNESS: Point 3.
 3 A. They found that the
 4 case-control studies did not demonstrate a
 5 consistent positive association across
 6 studies; although some studies have found
 7 small positive associations between talc and
 8 ovarian cancer, but lower confidence limits
 9 are often close to 1, and dose-response
 10 evidence is lacking.
 11 BY MR. ZELLERS:
 12 Q. That was FDA's conclusion
 13 number 3 based upon its review of the
 14 scientific literature; is that right?
 15 MS. O'DELL: Object to the
 16 form.
 17 A. It's correct. It's not a valid
 18 interpretation of the statistical results,
 19 but that was one of their findings.
 20 BY MR. ZELLERS:
 21 Q. Well, that was their finding.
 22 You disagree at least in part with their
 23 finding; is that right?
 24 MS. O'DELL: Object to the

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1 form.
 2 A. That is correct.
 3 BY MR. ZELLERS:
 4 Q. You are a paid expert for the
 5 plaintiffs in this litigation; is that right?
 6 A. That is correct.
 7 Q. To your knowledge, the FDA is
 8 not paid -- well, let me withdraw that.
 9 A. I wouldn't go out on a limb
 10 there.
 11 Q. Number 4, Conclusion 4, a
 12 cogent biological mechanism by which talc
 13 might lead to ovarian cancer is lacking.
 14 Exposure to talc does not account for all
 15 cases of ovarian cancer and there was no
 16 scientific consensus on the proportion of
 17 ovarian cancer cases that may be caused by
 18 talc exposure.
 19 Was that a conclusion of the
 20 FDA based upon its review of the
 21 epidemiologic literature?
 22 MS. O'DELL: Object to the
 23 form.
 24 A. Yes, it was, and it's one that

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1 I also disagree with.
 2 BY MR. ZELLERS:
 3 Q. IARC also considered the
 4 Bradford Hill considerations; is that right?
 5 A. Yes, it did.
 6 Q. IARC rejected classification of
 7 talc as a carcinogenic, instead assigning it
 8 to the classification of possibly
 9 carcinogenic to humans; is that correct?
 10 A. That's correct.
 11 Q. We've already discussed the
 12 IARC categories briefly, but let's mark a
 13 document from the IARC website as to the
 14 classifications, Exhibit 21.
 15 (Carson Deposition Exhibit 21
 16 marked.)
 17 BY MR. ZELLERS:
 18 Q. Tell me if you recognize that.
 19 A. Yes.
 20 Q. Exhibit 21 is from the IARC
 21 website, and it goes through the
 22 classifications of different agents that have
 23 been made by the International Agency for
 24 Research on Cancer; is that right?

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1 A. Yes, that's correct.
 2 Q. It has studied and included 120
 3 agents in the Group 1 category, which is
 4 carcinogenic to humans, correct?
 5 A. That's correct.
 6 Q. That's the only category in
 7 which IARC finds sufficient evidence in
 8 humans, correct?
 9 MS. O'DELL: Object to the
 10 form.
 11 A. That's the category that
 12 represents substances for which there is
 13 sufficient and irrefutable evidence of human
 14 carcinogenesis.
 15 BY MR. ZELLERS:
 16 Q. It lists 82 agents in Group 2A
 17 as being probably carcinogenic to humans; is
 18 that right?
 19 A. That's correct.
 20 Q. IARC is certainly willing to
 21 declare agents as either a known or probable
 22 carcinogen; is that right?
 23 A. That's correct.
 24 Q. There is only one agent in

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1 Group 4, probably not carcinogenic to humans,
 2 correct?
 3 A. Yes. I thought that number had
 4 gone up recently, but the date here is
 5 November 2018, so some may have been moved
 6 back into Group 3.
 7 Q. So out of the over 1,000 agents
 8 that IARC has reviewed, it's only placed one
 9 agent in the Group 4 category, probably not
 10 carcinogenic; is that right?
 11 A. That's correct.
 12 Q. There is no Group 5, not
 13 carcinogenic; is that right?
 14 A. That's correct.
 15 Q. With genital talc, IARC
 16 Group 2B designation -- well, strike that.
 17 Genital talc is listed as an
 18 IARC Group 2B designated substance; is that
 19 right?
 20 A. That's correct.
 21 Q. That's based on limited
 22 evidence in humans, which means that IARC
 23 cannot rule out chance, bias or confounding
 24 with reasonable confidence, correct?

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1 MS. O'DELL: Object to the
 2 form.
 3 A. I think limited evidence also
 4 refers to just the number of studies that
 5 have been performed as well as the quality of
 6 the studies.
 7 BY MR. ZELLERS:
 8 Q. Well, based upon the evidence
 9 that is available, the studies that are
 10 available, a 2B designation by IARC means
 11 that IARC cannot rule out chance, bias or
 12 confounding with reasonable confidence,
 13 correct?
 14 MS. O'DELL: Objection, asked
 15 and answered.
 16 A. Not always the case.
 17 BY MR. ZELLERS:
 18 Q. That's part of the definition,
 19 isn't it?
 20 A. I don't believe it applies to
 21 every agent or every evaluation.
 22 Q. Well, I'll not take the time to
 23 go through the IARC definitions; if we at the
 24 end of the day have extra time, we'll go back

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1 and we'll take a look.
 2 What else is in the Class 2B,
 3 possibly carcinogenic. Ginkgo biloba, is
 4 that something you're aware of that's in that
 5 category?
 6 MS. O'DELL: Object to the
 7 form.
 8 A. That's a biological material.
 9 BY MR. ZELLERS:
 10 Q. Pickled vegetables?
 11 A. That may be in Group 2B.
 12 Q. Occupational carpentry and
 13 joinery?
 14 MS. O'DELL: Objection to form.
 15 A. That's wood dust exposure.
 16 BY MR. ZELLERS:
 17 Q. Also 2B; is that right?
 18 A. Wood dust itself is Group 1.
 19 The occupation is Group 2B.
 20 Q. Let me ask you about some
 21 individual Bradford Hill criteria. On
 22 page 10 of your report, you state that you
 23 gave the most weight to strength of
 24 association, consistency and biologic

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1 plausibility; is that right?
 2 A. That's correct.
 3 Q. How much weight did you give to
 4 the other six factors?
 5 A. Sufficient.
 6 Q. Why did you put less weight on
 7 those?
 8 A. Because the strength of
 9 association, the consistency of the evidence
 10 and the biological plausibility of perineal
 11 talc, talcum powder application as
 12 responsible for the occurrence of ovarian
 13 cancer was compelling.
 14 Q. FDA focused on dose, correct?
 15 A. Yes.
 16 Q. You did not; is that right?
 17 A. That's right.
 18 Q. The first Bradford Hill factor
 19 that you focused on was strength of
 20 association.
 21 What association does the
 22 literature report between talc use and
 23 ovarian cancer?
 24 A. Overall, evaluating the

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1 universe of research, epidemiologic research
 2 that's been done on this, it shows an average
 3 30% increase in ovarian cancer risk for those
 4 who regularly apply talcum powder to the
 5 perineum.
 6 Q. Regular application of talcum
 7 powder means what?
 8 A. It -- I believe that it means
 9 daily or thereabouts.
 10 Q. In what form of application?
 11 A. Talcum powder.
 12 Q. In what amount?
 13 A. Whatever is necessary or
 14 desired by the user.
 15 Q. Does that vary from woman to
 16 woman?
 17 A. It does.
 18 Q. Did you make any attempt to
 19 assess what regular use of talcum powder was?
 20 MS. O'DELL: Object to the
 21 form.
 22 A. There have been a couple of
 23 attempts to try to quantify what -- what that
 24 means. I think for the most part they've

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1 been failed attempts, but they have been
 2 attempts to estimate the quantity of powder
 3 that you start with and the amount that
 4 results in the application to the perineum by
 5 using models and actually doing some
 6 measurements and recording activities.
 7 BY MR. ZELLERS:
 8 Q. You did not do any modeling or
 9 any assessment of the quantity of baby powder
 10 that was involved with daily use; is that
 11 right?
 12 A. No, I relied on those others.
 13 Q. When you say 30% increased
 14 risk, that's a 1.3 odds ratio; is that right?
 15 A. That's correct.
 16 Q. And that comes largely from the
 17 case-control studies, correct?
 18 MS. O'DELL: Object to the
 19 form.
 20 A. Yes, but it's also consistent
 21 with some of the information from the cohort
 22 studies.
 23 BY MR. ZELLERS:
 24 Q. Epidemiologists consider a 1.3

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1 odds ratio in a case-control study to be a
 2 weak or modest association; is that right?
 3 MS. O'DELL: Object to the
 4 form.
 5 A. That's correct.
 6 BY MR. ZELLERS:
 7 Q. Where here we're talking only
 8 about statistical associations, not
 9 causation, correct?
 10 MS. O'DELL: Object to the
 11 form.
 12 A. Well, association eventually
 13 becomes causation when the -- when the
 14 evidence mounts to a point where it becomes
 15 recognized by all of the players that this is
 16 what's going on.
 17 A 30% increase may be
 18 classified by epidemiologists as weak or
 19 modest, but if you look at the number of
 20 women in this country who die each year from
 21 this fatal disease, that represents about
 22 3,000 lives that could potentially be saved
 23 through prevention.
 24 Q. There is not a --

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1 MS. BOCKUS: Excuse me, I need
 2 to object as nonresponsive.
 3 MR. ZELLERS: Yes, join.
 4 BY MR. ZELLERS:
 5 Q. There is not a consensus at
 6 this time with respect to any causation
 7 relating to genital talc and ovarian cancer,
 8 is there?
 9 MS. O'DELL: Objection to the
 10 form.
 11 A. I believe that that consensus
 12 is building.
 13 BY MR. ZELLERS:
 14 Q. FDA -- that's not FDA's
 15 position, correct?
 16 MS. O'DELL: Object to the
 17 form.
 18 A. Not at the moment.
 19 BY MR. ZELLERS:
 20 Q. That's not the position of the
 21 National Cancer Institute; is that right?
 22 A. That's correct.
 23 Q. That's not the position of the
 24 CDC; is that correct?

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1 A. That's correct.
 2 Q. IARC does not refer to any
 3 association between perineal talc use and
 4 ovarian cancer as a strong association, does
 5 it?
 6 MS. O'DELL: Object to the
 7 form.
 8 A. It calls it a Group 2B
 9 carcinogen, which is fairly significant.
 10 BY MR. ZELLERS:
 11 Q. Well, we discussed a few
 12 minutes ago that if an agent is a Group 2B
 13 carcinogen, that is based on limited evidence
 14 in humans; is that right?
 15 A. That's correct.
 16 Q. All right. Your opinions on
 17 strength of association, do they apply
 18 equally to all forms of ovarian cancer?
 19 A. No, they don't. These apply to
 20 the epithelial ovarian cancer spectrum.
 21 Q. Your opinions in terms of there
 22 being a -- well, let me withdraw that.
 23 We've agreed that 1.3 is not a
 24 strong association, at least insofar as

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1 epidemiologists are concerned, correct?
 2 MS. O'DELL: Object to --
 3 object to the form.
 4 A. It's an increased risk that
 5 translates into human lives, so it depends on
 6 your point of view.
 7 MS. BOCKUS: Object to form --
 8 I mean, sorry, nonresponsive, move to
 9 strike.
 10 MR. ZELLERS: Join.
 11 MS. O'DELL: Oppose.
 12 DR. THOMPSON: Agreed.
 13 BY MR. ZELLERS:
 14 Q. The 1.3 relative risk that you
 15 believe generally applies, that would relate
 16 to epithelial cancers; is that right?
 17 A. Yes.
 18 Q. That's what you're limiting
 19 your opinions to in this case, correct?
 20 MS. O'DELL: Object to the
 21 form.
 22 A. Well, these opinions relate to
 23 several of the cancers that have shown
 24 increases in these background epidemiologic

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1 studies, which include the epithelial ovarian
 2 cancers, including the serous; the borderline
 3 cancers are also showing increases in some of
 4 the studies. So it's the group of those
 5 cancers, yes.
 6 BY MR. ZELLERS:
 7 Q. The cohort studies, prospective
 8 cohort studies, have not shown an association
 9 between talc and ovarian cancer, correct?
 10 MS. O'DELL: Object to the
 11 form.
 12 A. They have in some subtypes.
 13 BY MR. ZELLERS:
 14 Q. There was an initial
 15 description with respect to the first Nurses'
 16 study that was not supported in the update of
 17 that study; is that correct?
 18 A. The Nurses' Health Study?
 19 Q. Yes.
 20 A. Yes, that's correct.
 21 Q. Let's look at a different
 22 criteria, consistency. The literature does
 23 not show a consistent association between
 24 talc use and ovarian cancer, correct?

<p style="text-align: right;">Page 238</p> <p>1 MS. O'DELL: Object to the 2 form. 3 A. I believe that, in fact, 4 research shows -- does show a consistent 5 pattern. 6 BY MR. ZELLERS: 7 Q. The cohort studies do not show 8 an association between talc use and ovarian 9 cancer as we just discussed, correct? 10 A. The basic cohort studies that 11 look at all of the subjects and all of the 12 cancers together typically do not rise to the 13 level of significance. 14 Q. The hospital-based case-control 15 studies collectively do not show an 16 association between talc use and ovarian 17 cancer, correct? 18 A. I sort of discount the 19 distinction between the hospital-based 20 studies and the community-based studies. I'm 21 not sure whether there are valid reasons to 22 consider those differently. 23 Q. We've discussed earlier that 24 you are not an epidemiologist; is that right?</p>	<p style="text-align: right;">Page 240</p> <p>1 ill patients in the community to healthy 2 people in the community, correct? 3 A. In some cases that might be 4 correct, but I'm not sure that's any -- in 5 any sort of world an advantage. 6 Q. Well, shouldn't there be 7 consistency if the Bradford Hill criteria is 8 to be -- well, strike that. 9 In applying the Bradford Hill 10 criteria of consistency, there should be 11 consistency across different types of 12 studies, cohort studies, hospital-based 13 case-control studies, and population-based 14 case-control studies, correct? 15 MS. O'DELL: Object to the 16 form. 17 A. That's correct. 18 BY MR. ZELLERS: 19 Q. Isn't the absence of an 20 association in the cohort studies especially 21 significant in that the study design for the 22 cohort studies reduces the likelihood of 23 recall bias? 24 A. There are many forms of bias</p>
<p style="text-align: right;">Page 239</p> <p>1 MS. O'DELL: Object to the 2 form, misstates his testimony. 3 A. I don't think I necessarily 4 agreed to that characterization because I 5 deal a lot with epidemiologic work. I'm a 6 faculty member in the Department of 7 Epidemiology at the University of Texas 8 School of Public Health, and some may 9 consider me an epidemiologist. 10 BY MR. ZELLERS: 11 Q. Do you consider yourself an 12 expert in epidemiology? 13 A. No. 14 Q. Do you agree -- well, do you 15 agree that hospital-based case-control 16 studies are less susceptible to selection 17 bias than population-based case-control 18 studies? 19 A. It depends on the methodology 20 that's used to recruit the study subjects. 21 Q. With hospital-based 22 case-controlled studies, you're more likely 23 to be comparing hospitalized patients to 24 hospitalized patients rather than comparing</p>	<p style="text-align: right;">Page 241</p> <p>1 that study designers need to consider in the 2 process of designing a study, and there are 3 even more types of bias that are discovered 4 after a study has begun. 5 You can fault case-control 6 studies for being particularly sensitive to 7 recall bias, but many of these authors who 8 perform these studies indicated that they 9 were well aware of that bias potential and 10 took measures to avoid it. 11 The same thing can be said 12 about cohort studies. They suffer from other 13 forms of bias, misclassification in 14 particular. They may also suffer from the 15 fact that they are extremely expensive, have 16 long duration, and require very large numbers 17 of subjects in order to carry them out and 18 are frequently underpowered and unable to 19 arrive at the conclusions that they seek for 20 that reason. 21 MR. ZELLERS: Move to strike as 22 nonresponsive. 23 BY MR. ZELLERS: 24 Q. Is it possible that recall bias</p>

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1 explains the difference between the cohort
 2 studies and the retrospective case-control
 3 studies?
 4 MS. O'DELL: Object to form,
 5 asked and answered.
 6 A. I don't believe that that is
 7 the case.
 8 BY MR. ZELLERS:
 9 Q. Is it possible?
 10 MS. O'DELL: Objection.
 11 A. Theoretically it would be
 12 possible.
 13 BY MR. ZELLERS:
 14 Q. Are you familiar with the
 15 Berge -- Berge 2017 study?
 16 A. Yes.
 17 Q. Is that a study that you cite
 18 and reviewed and rely on?
 19 A. It was a meta-analysis.
 20 Q. Is that a meta-analysis that
 21 you cite, review and have relied upon?
 22 A. Yes.
 23 Q. Take a look, if you will, at
 24 Exhibit 22.

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1 (Carson Deposition Exhibit 22
 2 marked.)
 3 THE WITNESS: Thank you.
 4 MS. O'DELL: Thank you.
 5 BY MR. ZELLERS:
 6 Q. You're familiar with this
 7 meta-analysis; is that right?
 8 A. Yes.
 9 Q. The authors conclude that
 10 information bias from retrospective
 11 self-report of talc use is a possible
 12 explanation for the association detected in
 13 case-control studies; is that right?
 14 MS. O'DELL: I'm sorry, are you
 15 reading from a certain page?
 16 MR. ZELLERS: I am.
 17 MS. O'DELL: Can you direct it
 18 to us, please?
 19 THE WITNESS: Could you tell us
 20 where that is?
 21 MR. ZELLERS: Sure.
 22 BY MR. ZELLERS:
 23 Q. Take a look if you will on
 24 page 6, the right-hand column, third

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1 paragraph. Reading from the second full
 2 paragraph, the authors discuss the fact that
 3 the association between genital talc use and
 4 risk of ovarian cancer is present in
 5 case-control but not in cohort studies, can
 6 be attributed to bias in the former type of
 7 studies; is that right?
 8 MS. O'DELL: Object to the
 9 form.
 10 A. That's what it says.
 11 BY MR. ZELLERS:
 12 Q. Then continuing down:
 13 Information bias from retrospective
 14 self-report of talc use is a possible
 15 explanation for the association detected in
 16 case-control studies.
 17 Is that right?
 18 A. That's what it says.
 19 Q. What was your methodology for
 20 discounting the effect of recall bias in the
 21 population-based case-control studies?
 22 A. The fact that several authors
 23 discussed the possibility of recall bias and
 24 incorporated methodology for avoiding recall

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1 bias, for example, placing parallel questions
 2 that should be affected in the same way, and
 3 still showed a positive result for talc and
 4 ovarian cancer is one reason.
 5 The other has to do with
 6 consistency of the results, and although
 7 you've stated that from these various
 8 documents, including this quotation, that the
 9 case-control studies showed positive
 10 associations but the cohort studies did not,
 11 I would -- I would refute that by saying that
 12 all of the -- the vast majority of all of the
 13 studies show a positive odds ratio or
 14 relative risk, even if they don't rise to the
 15 level of significance.
 16 If these results were obtained
 17 simply by chance, you would expect an equal
 18 number of positive results and negative
 19 results, but we don't have that here. We
 20 have practically all positive results with
 21 three or four outliers.
 22 And so --
 23 Q. We looked at the Taher paper
 24 early on in this deposition where Taher

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1 concluded that 15 out of the 30 case-control
 2 studies reported a statistically significant
 3 association between genital talc use and
 4 ovarian cancer, correct?
 5 A. That's correct, but you're
 6 not -- you're not talking about the other 15.
 7 Q. The hospital-based case-control
 8 studies collectively do not show a
 9 statistically significant association between
 10 talc use and ovarian cancer, correct?
 11 MS. O'DELL: Object to the
 12 form.
 13 A. I don't know that that is the
 14 case.
 15 BY MR. ZELLERS:
 16 Q. You don't know that it's not
 17 the case; you'd have to go back and relook at
 18 the studies, fair?
 19 A. I'd have to look through here,
 20 which I'm happy to do if you want me to, but
 21 I don't believe that that's the case.
 22 Q. In fact, the author, you cite
 23 the Langseth paper, a 2008 paper, as
 24 supportive of your position; is that right?

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1 A. Yes.
 2 Q. I'll mark that
 3 Deposition Exhibit 23.
 4 A. I think it was 2004, was it
 5 not?
 6 Q. Well, I'm going to hand it to
 7 you and we can look at it together.
 8 (Carson Deposition Exhibit 23
 9 marked.)
 10 A. Okay.
 11 BY MR. ZELLERS:
 12 Q. You're familiar with the
 13 Langseth paper; is that right?
 14 A. Yes.
 15 (Comments off the stenographic
 16 record.)
 17 BY MR. ZELLERS:
 18 Q. Langseth and the authors
 19 concluded that the current body of
 20 experimental and epidemiological evidence is
 21 insufficient to establish a causal
 22 association between perineal use of talc and
 23 ovarian cancer risk; is that right?
 24 And I'm looking at the second

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1 page.
 2 MS. O'DELL: Object to the
 3 form.
 4 BY MR. ZELLERS:
 5 Q. Is that the conclusion of the
 6 authors?
 7 A. What I'm reading here is on
 8 balance, the epidemiological evidence
 9 suggests that the use of cosmetic talc in the
 10 perineal area may be associated with ovarian
 11 cancer risk. The mechanism of
 12 carcinogenicity may be related to
 13 inflammation.
 14 Q. Take a look at the paragraph on
 15 the right-hand side under Proposal to
 16 Research Community. I'm looking at the
 17 second page of the Langseth article.
 18 Are you there?
 19 A. Yes, I am.
 20 Q. The authors state: The current
 21 body of experimental and epidemiological
 22 evidence is insufficient to establish a
 23 causal association between perineal use of
 24 talc and ovarian cancer risk.

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1 Is that right?
 2 MS. O'DELL: Object to the
 3 form.
 4 A. That's what it says.
 5 BY MR. ZELLERS:
 6 Q. Experimental research is needed
 7 to better characterize deposition, retention
 8 and clearance of talc to evaluate the ovarian
 9 carcinogenicity of talc.
 10 Is that what the authors state?
 11 A. Well, that's what it says, but
 12 it says much more. In fact, the editors of
 13 the journal, in the section on the next page
 14 that is titled What This Study Adds, say:
 15 Epidemiological evidence suggests that the
 16 use of cosmetic talc in the perineal area may
 17 be associated with ovarian cancer risk. The
 18 IARC has classified this use of talc as
 19 possibly carcinogenic to human beings,
 20 Group 2B. The mechanism of carcinogenicity
 21 may be related to inflammation. This paper
 22 focused on the high degree of consistency in
 23 the studies accomplished so far and what
 24 should be the focus in future studies.

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1 So I --

2 Q. And then the conclusion is what

3 I read, that: The current body of

4 experimental and epidemiological evidence is

5 insufficient to establish a causal

6 association between perineal use of talc and

7 ovarian cancer risk.

8 Correct?

9 MS. O'DELL: Object to the

10 form.

11 A. That is what it says, but this

12 was accepted in 2007, which was now 12 years

13 ago.

14 BY MR. ZELLERS:

15 Q. Let me ask you about the cohort

16 studies. They involved a much greater number of

17 women than the case-controlled studies; is

18 that right?

19 MS. O'DELL: Object to the

20 form.

21 A. Well, they did not involve more

22 cases, but they involved more women because

23 in order to do a cohort study, you have to

24 start with a huge group of people and wait

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1 for them to develop cancers, and then count

2 those cancers.

3 BY MR. ZELLERS:

4 Q. What was your methodology for

5 weighing the power of the cohort studies

6 versus the case-control studies?

7 A. The cohort studies, it wasn't

8 apparent in every research report exactly how

9 they had done their sample size calculations

10 and power determinations, but in many cases

11 the lack of arriving at conclusions was

12 simply due to an inability to detect an

13 effect in the cohort studies, not that they

14 detected that there was not an effect. And

15 that's unfortunately a disadvantage of an

16 underpowered study.

17 Q. Is it your testimony that the

18 cohort studies are underpowered?

19 A. I think by and large most

20 cohort studies are underpowered and --

21 because power calculations are based on

22 chance. Investigators are sort of spinning

23 the roulette wheel and hoping that the number

24 that they want comes up. In some cases that

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1 doesn't happen.

2 Q. Is it your testimony that the

3 cohort studies relating to genital talc use

4 and ovarian cancer are spinning the roulette

5 wheel?

6 MS. O'DELL: Object to the

7 form.

8 A. In terms of the power of the

9 studies to detect a meaningful difference

10 among the subjects, yes.

11 BY MR. ZELLERS:

12 Q. That's your testimony as an

13 expert in this case; is that right?

14 A. It is my testimony that cohort

15 studies, including these, are chronic -- or

16 quite often underpowered simply because of

17 the expense associated with performing these

18 studies.

19 Q. What analysis did you do to

20 conclude that the cohort studies in this

21 area, the four cohort studies, are

22 underpowered?

23 A. Like I just mentioned to you, I

24 read the studies and looked at their

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1 conclusions, and their conclusions were not

2 that the effect didn't exist, but they

3 couldn't detect it.

4 MR. ZELLERS: Let's go off the

5 record because we need to change our

6 tape.

7 THE VIDEOGRAPHER: We're off

8 the record at 3:06, end of Tape 3.

9 (Recess taken, 3:06 p.m. to

10 3:19 p.m.)

11 THE VIDEOGRAPHER: We're on the

12 record at 3:19, beginning of Tape 4.

13 BY MR. ZELLERS:

14 Q. Dr. Carson, you are not a

15 statistician, correct?

16 A. That's correct.

17 Q. You are not a biostatistician;

18 is that right?

19 A. That's right.

20 Q. Do you agree that some of the

21 case-control studies have shown statistically

22 significant findings and others have not?

23 A. I do agree that.

24 Q. If a study does not show a

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1 statistically significant association, it
 2 could mean that no risk exists, as we've
 3 discussed; is that right?
 4 A. That's correct.
 5 Q. What methodology did you use to
 6 weigh the lack of statistical significance
 7 across studies?
 8 MS. O'DELL: Object to the
 9 form.
 10 A. Across all of the case-control
 11 studies?
 12 BY MR. ZELLERS:
 13 Q. Yes.
 14 A. I simply treated them as
 15 isolated research designs that were done on
 16 different populations in different places
 17 with different considerations. They were not
 18 necessarily comparable, like apples to apples
 19 or oranges to oranges; they were very
 20 different studies in most cases, and so I
 21 felt it was important to allow their findings
 22 to stand on their own.
 23 Q. I want to talk to you about
 24 dose-response. That's another of the

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1 Bradford Hill criteria; is that right?
 2 A. That's correct.
 3 Q. Which studies show a
 4 dose-response, talc exposure and ovarian
 5 cancer?
 6 A. Let me see here. I'm looking
 7 at my notes. The Harlow study from 1992
 8 showed a dose-response, and the Cramer 2016
 9 study showed a dose trend with strong odds
 10 ratios for premenopausal women and hormone
 11 therapy-treated women with greater than
 12 24 years of exposure.
 13 The Schildkraut study, also a
 14 case-controlled study of 2016, showed a
 15 dose-response.
 16 Q. There are a number of studies
 17 that did not show a dose-response; is that
 18 right?
 19 A. It's correct. They did not
 20 necessarily show there was not a
 21 dose-response. They just, as I was
 22 mentioning before, were unable to detect a
 23 dose-response.
 24 Q. Do you have your report in

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1 front of you?
 2 A. I do.
 3 I would also add that the
 4 Penninkilampi meta-analysis also found a
 5 dose-response.
 6 Q. Do you mention Penninkilampi at
 7 all in your report?
 8 A. It's cited.
 9 Q. In the body of your report?
 10 A. I think it's in there
 11 somewhere.
 12 Q. You believe it is; is that
 13 right?
 14 A. I do.
 15 Q. Well, I'll ask you a couple of
 16 questions about it then.
 17 Before I do, let's talk a
 18 little bit more about your report. So go to
 19 page 7. You state at the very top of that
 20 page that it has been difficult to estimate
 21 dose in order to evaluate the dose-response
 22 relationship for ovarian cancer; is that
 23 right?
 24 A. That's correct.

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1 Q. You state that it also has been
 2 difficult to exactly estimate the quantity of
 3 talcum powder administration during personal
 4 hygiene activities; is that right?
 5 A. That's correct.
 6 Q. Let's look at a couple of the
 7 studies that you believe do, in fact, show a
 8 dose-response. The Penninkilampi, that's a
 9 meta-analysis, 2018; is that right?
 10 A. That's correct.
 11 Q. That study does not consider or
 12 include the Gertic 2010 cohort study; is that
 13 right?
 14 A. I -- I'd have to look at the
 15 table, but yes, that one may be left out.
 16 Q. Well, that's a significant
 17 study to leave out of an analysis, isn't it?
 18 MS. O'DELL: Object to the
 19 form.
 20 THE WITNESS: I'm getting
 21 there.
 22 (Document review.)
 23 THE WITNESS: Apologies, I have
 24 binder block here.

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1 MS. O'DELL: You need help?
 2 THE WITNESS: Okay.
 3 BY MR. ZELLERS:
 4 Q. And I misspoke. I meant to
 5 refer to Gates, the updated Nurses' study.
 6 So Gates 2010.
 7 A. Yes, it appears that Gates is
 8 not included in the -- in the spectrum of
 9 studies considering; the Gertic study does
 10 appear.
 11 Q. Gates 2010 is an important
 12 cohort study in this area, would you agree?
 13 MS. O'DELL: Object to the
 14 form.
 15 A. It's important, but I think it
 16 may be considered one of the ones that
 17 suffered from power issues. It wasn't able
 18 to determine a relative risk in the
 19 population that it assessed.
 20 BY MR. ZELLERS:
 21 Q. There are a number of the
 22 case-control studies that did not determine a
 23 relative risk, at least of statistical
 24 significance, correct?

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1 A. Well, they determined odds
 2 ratios, which is the equivalent of relative
 3 risk for a case-control study.
 4 Q. And in a number of those
 5 case-control studies, at least 15 out of the
 6 30 relative risk was not -- or strike that --
 7 statistical significance was not achieved in
 8 the study; is that right?
 9 MS. O'DELL: Object to the
 10 form.
 11 A. That's correct.
 12 BY MR. ZELLERS:
 13 Q. Let's look at the Cramer paper.
 14 We've talked about this earlier.
 15 A. Which one, the 2016?
 16 Q. Exhibit 20, yes, 2016.
 17 A. Okay.
 18 Q. This is another study that you
 19 cite as being supportive of your
 20 dose-response opinion; is that right?
 21 A. Yes.
 22 Q. Tell me when you have it.
 23 A. I think you may have picked up
 24 my copy or the copy that I was looking at.

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1 Q. This is my highlighted copy, so
 2 I'm sure it wasn't yours.
 3 A. I'm sorry.
 4 Q. That's all right. We'll --
 5 take your time.
 6 A. Here we are.
 7 Q. Got it, Exhibit 20?
 8 A. I think so.
 9 Q. Do you have the Cramer study in
 10 front of you?
 11 A. I do.
 12 Q. It's a retrospective
 13 case-control study published in 2016; is that
 14 right?
 15 A. That's correct.
 16 Q. If we look at the table of
 17 results on page 337, Table 1.
 18 Do you see that?
 19 A. Yes.
 20 Q. This table shows the risk of
 21 ovarian cancer for women who use talc, talcum
 22 powder, daily; is that right?
 23 MS. O'DELL: Object to the
 24 form.

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1 A. It does.
 2 BY MR. ZELLERS:
 3 Q. And it's four different periods
 4 of time; one year, one to five years, five to
 5 20 years and more than 20 years; is that
 6 right?
 7 A. That's correct.
 8 Q. There was only statistical
 9 significance found for the time period of one
 10 to five years of use and more than 20 years
 11 of use; is that right?
 12 A. For the first group, the -- for
 13 those who reported months year of use --
 14 months per year of use.
 15 Q. Well, for the first group,
 16 which was equivalent to one year of daily
 17 use, there was no statistical significance;
 18 is that right?
 19 MS. O'DELL: Object to the
 20 form.
 21 A. That -- well, the -- there was
 22 a positive odds ratio with a nonsignificant
 23 95% confidence interval.
 24 ///

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1 BY MR. ZELLERS:
 2 Q. Meaning that if you look at
 3 this study, that it is certainly possible
 4 that because there is not statistical
 5 significance, there could be a finding of no
 6 risk, correct, no increased risk?
 7 A. That's a possibility.
 8 Q. Then if we go to the next
 9 period, we do show a dose-response for talcum
 10 powder use in the year -- years one to five;
 11 is that right?
 12 A. Well, one to five years of
 13 daily use, yes.
 14 Q. But then when we look at five
 15 to 20 years of daily use, there is not a
 16 statistically significant association; is
 17 that right?
 18 A. That's correct.
 19 Q. But then when we go to greater
 20 than 20 years, we do find a statistical
 21 association; is that right?
 22 A. That's correct.
 23 Q. If, in fact, there was a true
 24 dose-response relationship, you would expect

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1 to see that dose-response relationship in
 2 each of these groups; is that right?
 3 MS. O'DELL: Object to the
 4 form.
 5 A. It's more like we see in the
 6 group directly below that, where you start
 7 out with an odds ratio which is not
 8 significant but positive, and then reach a
 9 significant odds ratio at one to five years
 10 of daily use and a higher amount of
 11 significance with five to 20 years of daily
 12 use, and still a significant odds ratio,
 13 which is about the same level, at greater
 14 than 20 years of daily use.
 15 BY MR. ZELLERS:
 16 Q. Is that a yes to my question,
 17 that if you do have a true dose-response
 18 relationship, you would expect to see that
 19 dose-response continue throughout each of the
 20 periods?
 21 MS. O'DELL: Object to the
 22 form.
 23 A. Well, it would be nice if you
 24 did that, but epidemiologic data is very

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1 dirty, and it doesn't always work out quite
 2 that cleanly.
 3 BY MR. ZELLERS:
 4 Q. All right. Do you -- well, let
 5 me withdraw that.
 6 Confounding. You considered
 7 and talk about confounding as another one of
 8 the Bradford Hill criteria; is that right?
 9 MS. O'DELL: Object to the
 10 form.
 11 A. Confounding, by that you mean
 12 specificity?
 13 BY MR. ZELLERS:
 14 Q. Well, I thought your -- I
 15 thought you said in your methodology that you
 16 applied the Bradford Hill criteria.
 17 A. That's correct.
 18 Q. Is confound -- strike that.
 19 Is confounding an issue in
 20 interpreting epidemiologic studies?
 21 A. Yes.
 22 Q. Do you agree that there is
 23 confounding in these studies?
 24 A. I'm sure there's confounding in

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1 these studies.
 2 Q. You're familiar with that term,
 3 right?
 4 A. Yes.
 5 Q. That's where the presence of
 6 another association confuses the relationship
 7 between the exposure and the disease being
 8 studied; is that right?
 9 A. That's correct.
 10 Q. For example, if you're studying
 11 the association between coffee and pancreatic
 12 cancer, you need to be mindful of whether
 13 cigarette smoking is more common in coffee
 14 drinkers than the rest of the population,
 15 fair?
 16 A. Yes.
 17 Q. Coffee -- or strike that.
 18 Cigarette smoking could be a
 19 confounder in that situation?
 20 A. Possible.
 21 Q. Because if more coffee drinkers
 22 are smokers than non-coffee drinkers, an
 23 association between coffee drinking and
 24 pancreatic cancer might be due to the

<p style="text-align: right;">Page 266</p> <p>1 smoking, not the coffee drinking; fair?</p> <p>2 A. That would be a good</p> <p>3 description of confounding.</p> <p>4 Q. Confounding can distort results</p> <p>5 in epidemiological studies; is that right?</p> <p>6 A. It can.</p> <p>7 Q. Do you agree that residual</p> <p>8 confounding is possible in every</p> <p>9 observational study?</p> <p>10 A. Yes, I think there's some form</p> <p>11 of confounding that's present in every</p> <p>12 observational study.</p> <p>13 Q. It's possible that unmeasured</p> <p>14 confounders may be present in every</p> <p>15 observational study; is that right?</p> <p>16 A. That's correct. Not just</p> <p>17 unmeasured confounders, but unrecognized</p> <p>18 confounders.</p> <p>19 Q. It's impossible to say that all</p> <p>20 known and unknown confounding factors have</p> <p>21 been controlled for in any given study; is</p> <p>22 that right?</p> <p>23 A. I also agree with that.</p> <p>24 Q. Many new factors possibly</p>	<p style="text-align: right;">Page 268</p> <p>1 not controlled for in any of the talc/ovarian</p> <p>2 cancer studies, were they?</p> <p>3 A. Not that I'm aware of.</p> <p>4 Q. Are you aware that studies that</p> <p>5 show a relationship between talc and ovarian</p> <p>6 cancer did not account for confounders?</p> <p>7 A. I think it's possible that many</p> <p>8 of those studies did not account for all</p> <p>9 potential confounders, but they made attempts</p> <p>10 to.</p> <p>11 Q. For example, Terry 2013, we</p> <p>12 talked about that earlier; is that right?</p> <p>13 A. Yes.</p> <p>14 Q. Terry 2013, that meta-analysis</p> <p>15 did not adjust for hormone replacement</p> <p>16 therapy usage, correct?</p> <p>17 A. Yes.</p> <p>18 Q. If hormone replacement therapy</p> <p>19 is a risk factor for ovarian cancer, then the</p> <p>20 Terry 2013 meta-analysis did not account for</p> <p>21 that potential confounding factor, correct?</p> <p>22 MS. O'DELL: Object to the</p> <p>23 form.</p> <p>24 A. Correct.</p>
<p style="text-align: right;">Page 267</p> <p>1 involved in ovarian cancer risk are just</p> <p>2 being published in the literature, correct?</p> <p>3 MS. O'DELL: Object to the</p> <p>4 form.</p> <p>5 A. I believe that is true.</p> <p>6 BY MR. ZELLERS:</p> <p>7 Q. For example, history of</p> <p>8 chlamydia infection, have you read about that</p> <p>9 possibly being involved in ovarian cancer</p> <p>10 risk?</p> <p>11 A. I haven't read that</p> <p>12 specifically. I was thinking more about the</p> <p>13 new information regarding genetic</p> <p>14 susceptibilities.</p> <p>15 Q. Also, weight gain during</p> <p>16 adolescence, is that another relatively new</p> <p>17 possible ovarian cancer risk factor?</p> <p>18 MS. O'DELL: Object to the</p> <p>19 form.</p> <p>20 A. It is, but obesity has been</p> <p>21 recognized as a cofactor for many years.</p> <p>22 BY MR. ZELLERS:</p> <p>23 Q. History of chlamydia infection,</p> <p>24 weight gain during adolescence, those were</p>	<p style="text-align: right;">Page 269</p> <p>1 BY MR. ZELLERS:</p> <p>2 Q. You cannot say whether the odds</p> <p>3 ratio of the Terry 2013 study would have been</p> <p>4 lower if the authors had adjusted for hormone</p> <p>5 replacement therapy usage, correct?</p> <p>6 A. I cannot say that. Yes.</p> <p>7 Q. Recall bias. You're familiar</p> <p>8 with recall bias?</p> <p>9 A. I am.</p> <p>10 Q. That is also a concern in every</p> <p>11 retrospective study, correct?</p> <p>12 A. Yes.</p> <p>13 Q. Recall bias can distort a</p> <p>14 scientific evaluation of whether an exposure</p> <p>15 is actually related to a disease; is that</p> <p>16 right?</p> <p>17 A. Yes, it can.</p> <p>18 Q. For example, recall bias could</p> <p>19 distort results if women with ovarian cancer</p> <p>20 were more likely to remember their exposure</p> <p>21 to talc than women without ovarian cancer; is</p> <p>22 that right?</p> <p>23 MS. O'DELL: Object to the</p> <p>24 form.</p>

<p style="text-align: right;">Page 270</p> <p>1 A. That's correct. 2 BY MR. ZELLERS: 3 Q. The effects of recall bias can 4 be very real; is that right? 5 MS. O'DELL: Object to the 6 form. 7 A. I'm not sure what you mean by 8 very real. 9 BY MR. ZELLERS: 10 Q. Well, let's look at one of the 11 studies that you cite. You cited the 12 Schildkraut study in your report and you 13 referred to it a bit earlier as supporting 14 dose-response; is that right? 15 A. Yes. 16 Q. That's a study by Schildkraut 17 and others titled Association Between Body 18 Powder Use and Ovarian Cancer, the 19 African-American Cancer Epidemiologic -- or 20 Epidemiology Study. 21 Is that right? 22 A. Yes. 23 Q. I've got it here for you. 24 A. Okay.</p>	<p style="text-align: right;">Page 272</p> <p>1 publicity from lawsuits might influence the 2 participants' recall of prior body powder 3 use; is that right? 4 A. This was a recent study, so 5 that was more likely. 6 Q. If you look on page 2, 7 right-hand side, last paragraph that starts 8 "Covariates include." 9 Do you see that? 10 A. Yes. 11 Q. And I'm reading about 12 two-thirds of the way down: Two class action 13 lawsuits were filed in 2014 concerning 14 possible carcinogenic effects of body powder 15 which may have influenced recall of use; 16 therefore, year of interview 2014 or later, 17 yes/no, was concluded as a covariate in the 18 logistic regression models. 19 Is that correct? 20 A. That's correct. 21 Q. So go to page 4, Table 2. This 22 is the adjusted odds ratio for the 23 associations between mode, frequency and 24 duration of body powder use in ovarian</p>
<p style="text-align: right;">Page 271</p> <p>1 (Carson Deposition Exhibit 24 2 marked.) 3 BY MR. ZELLERS: 4 Q. Deposition Exhibit 24 is the 5 Schildkraut study, 2016, correct? 6 (Pause.) 7 BY MR. ZELLERS: 8 Q. Did you say correct? 9 A. I think I did. I'm sorry. 10 Q. That's all right. I may have 11 missed it. 12 Exhibit 24 is the Schildkraut 13 2016 study; is that right? 14 A. Yes. 15 Q. This is one of the studies that 16 you cite to and that you relied on in forming 17 your opinions; is that right? 18 A. Yes. 19 Q. The study looked at, among 20 other things, what impact, if any, lawsuit 21 filings in 2014 had on whether women recalled 22 using talc in the past, correct? 23 A. I believe so. 24 Q. The authors thought that the</p>	<p style="text-align: right;">Page 273</p> <p>1 cancer; is that right? 2 A. Yes. 3 Q. The second column shows the 4 number of cases, and that would be women with 5 ovarian cancer; is that right? 6 A. That's correct. 7 Q. The third column shows the 8 controls; that's the women who do not have 9 ovarian cancer, correct? 10 A. Yes. 11 Q. Looking at this data before 12 2014, before the lawsuits, the percentage of 13 controls, meaning women without ovarian 14 cancer, said they used talc on their genitals 15 was 34%; is that right? 16 So those are women who were 17 interviewed before 2014. 18 A. Yes. Any genital use controls, 19 34%. 20 Q. And the controls, again, are 21 women without ovarian cancer. 22 A. That's correct. 23 Q. The percentage of cases, 24 meaning women with ovarian cancer, that were</p>

<p style="text-align: right;">Page 274</p> <p>1 interviewed before 2014 that said they used 2 talc on their genitals was 36.5%; is that 3 right? 4 A. That's correct. 5 Q. So roughly the same reporting 6 of genital talc use between women with and 7 without ovarian cancer occurred for those 8 women interviewed before the lawsuits were 9 filed; is that right? 10 A. That's correct. 11 Q. Then look at what happened 12 after the lawsuits were filed in 2014. For 13 women interviewed after 2014, the percent of 14 women without ovarian cancer that said they 15 used talc on their genitals was 34.4%; is 16 that right? 17 A. That's correct. 18 Q. So based on this data, the 19 lawsuits had essentially no effect on how 20 many of the women without ovarian cancer, the 21 controls, remembered or recalled using baby 22 powder; is that right? 23 A. Well, the percentage is the 24 same in both cases.</p>	<p style="text-align: right;">Page 276</p> <p>1 BY MR. ZELLERS: 2 Q. In this study, lawsuit filings 3 appears to have affected how many women with 4 ovarian cancer remembered using talc on their 5 genitals but basically had no effect on the 6 memory of women without ovarian cancer; is 7 that right? 8 MS. O'DELL: Object to the 9 form. 10 A. You can't say that this is -- 11 this demonstrates recall bias. It could. 12 BY MR. ZELLERS: 13 Q. These findings could be an 14 example of the potential effect of recall 15 bias; is that right? 16 MS. O'DELL: Object to the 17 form. 18 A. That is correct. 19 BY MR. ZELLERS: 20 Q. So pre-2014 there was an odds 21 ratio of 1.19 with the confidence interval 22 ranging from .87 to -- strike that -- 23 from .87 to 1.63, so there is not statistical 24 significance pre-2014; is that right?</p>
<p style="text-align: right;">Page 275</p> <p>1 Q. It went from 34% to 34.4%; is 2 that right? 3 A. That's correct. 4 Q. For women with ovarian cancer, 5 before the lawsuits were filed, 36.5% of them 6 said they recalled using baby powder; is that 7 right? 8 A. That's right. 9 Q. But after the lawsuits were 10 filed, the percent of women with ovarian 11 cancer who said they used baby powder went up 12 to 51.5%; is that right? 13 A. That is also correct. 14 Q. Is that a significant increase 15 from 36.5%? 16 A. I don't know, but it seems like 17 it might be. 18 Q. So after the lawsuits were 19 filed, the percent of women with ovarian 20 cancer who said they used baby powder jumped 21 significantly; is that right? 22 MS. O'DELL: Object to the 23 form. 24 A. Well, that's -- that is true.</p>	<p style="text-align: right;">Page 277</p> <p>1 A. Probably not. 2 Q. If the study had been 3 terminated as of 2014, prior to the lawsuits 4 being filed, then the results of the study 5 would have been that genital talc use was not 6 statistically significantly associated with 7 an increased risk of ovarian cancer; is that 8 right? 9 MS. O'DELL: Object to the 10 form. 11 A. Yes. 12 BY MR. ZELLERS: 13 Q. Did you make an attempt to 14 account for this potential recall bias in 15 weighing the Schildkraut study? 16 A. The authors did that for me by 17 including the period of the interview as a 18 cofactor in the logistic regression models. 19 It accounts for this difference that you see 20 on the table. 21 Q. You do agree there was no 22 statistically significant finding of an odds 23 ratio prior to 2014, the data collected 24 through that time; is that right?</p>

<p style="text-align: right;">Page 278</p> <p>1 A. In the -- in the data collected 2 on those -- let me see here. In the data 3 collected on those 351 cases and 4 corresponding controls, there was not a 5 significant odds ratio.</p> <p>6 Q. I want to go back and ask you a 7 few questions about some of the things I had 8 talked to you before about.</p> <p>9 In terms of this chatter about 10 IARC, who has told you this?</p> <p>11 A. There are a number of 12 environmental websites and -- that also 13 operate on social media that discuss this 14 kind of thing.</p> <p>15 Q. So there's social media 16 websites that have talked about at least the 17 possibility of IARC revisiting the issue?</p> <p>18 A. Yes, among many other things.</p> <p>19 Q. I asked you earlier about 20 cornstarch, and you believe that cornstarch 21 is rapidly cleared from the body, including 22 the ovaries; is that right?</p> <p>23 MS. O'DELL: Object to the 24 form.</p>	<p style="text-align: right;">Page 280</p> <p>1 factors -- or latency periods for a number of 2 different types of cancers and tumors based 3 on the incidence data and what is known about 4 the natural progression of those tumors over 5 time.</p> <p>6 I can't recall at the moment 7 exactly where I determined the latency period 8 for ovarian cancer to be between 20 and 9 40 years.</p> <p>10 We do have a paper that's 11 referenced here that discusses the 12 determination of latency periods and includes 13 ovarian cancer as one of the tumors that it 14 determines a latency period for, and it uses 15 a mathematical formula with various factors 16 plugged into it to calculate that.</p> <p>17 In that particular article, the 18 latency factor -- period was very long. I 19 think it was 44 years on the average.</p> <p>20 Q. You do not have personal 21 expertise in terms of the latency period for 22 ovarian cancer, correct?</p> <p>23 A. I have -- I've calculated 24 latency periods as an exercise when I was in</p>
<p style="text-align: right;">Page 279</p> <p>1 A. Yes. 2 BY MR. ZELLERS:</p> <p>3 Q. What is the mechanism by which 4 you believe that cornstarch is rapidly 5 cleared from the body, including the ovaries?</p> <p>6 A. It's primarily composed of 7 carbohydrate with a small amount of 8 structural material, probably cellulose, and 9 those materials are broken down in body 10 fluids fairly rapidly and dissolved and 11 become part of the general milieu of the 12 body.</p> <p>13 Q. Does cornstarch create 14 inflammation in the body?</p> <p>15 A. Yes.</p> <p>16 Q. You testified that the latency 17 period for ovarian cancer is between 20 and 18 40 years; is that right?</p> <p>19 A. Roughly, yes.</p> <p>20 Q. What is the basis for you 21 saying that?</p> <p>22 A. There are a number of factors 23 that influence that, but there are 24 organizations that have determined latency</p>	<p style="text-align: right;">Page 281</p> <p>1 graduate school, but that's not something I 2 normally do. I usually defer to the -- those 3 who have published latency periods for that 4 information.</p> <p>5 Q. You are recalling that at least 6 in some of the study or studies that you've 7 reviewed that the latency period for ovarian 8 cancer is 20 to 40 years, correct?</p> <p>9 A. Yes.</p> <p>10 Q. Are you able to tell us which 11 study or studies you're relying on for that 12 information?</p> <p>13 A. I'd have to go through my list 14 to find it. Do you mind if I take a moment 15 to do that?</p> <p>16 Q. Define "a moment."</p> <p>17 A. Well, however long it takes me 18 to find it in that list, but --</p> <p>19 Q. Let me see if I can shortcut 20 it.</p> <p>21 Do you believe that the latency 22 period for ovarian cancer is something you've 23 written out in one of your handwritten notes?</p> <p>24 A. I don't believe so.</p>

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<p>1 Q. It would be -- where would it 2 be?</p> <p>3 MS. O'DELL: If you need a 4 moment to review either your report or 5 your materials list, you know --</p> <p>6 THE WITNESS: I don't believe 7 that particular piece of information 8 is in my report, but it's -- I think I 9 could come up with it fairly quickly 10 if I --</p> <p>11 BY MR. ZELLERS:</p> <p>12 Q. All right. Go ahead. Find for 13 us the study or studies you're relying on for 14 the latency period of ovarian cancer.</p> <p>15 A. Okay. If I'm lucky, I may hit 16 on it here.</p> <p>17 (Document review.)</p> <p>18 A. It's the Diana Nadler and Igor 19 Zurbenko paper Estimating Cancer Latency 20 Times Using the Weibull Model.</p> <p>21 BY MR. ZELLERS:</p> <p>22 Q. You're looking at Exhibit 4, 23 your literature list; is that right?</p> <p>24 A. Yes.</p>	<p>1 MS. BOCKUS: If you want to 2 pass me your microphone, I think I can 3 stay here. I'm not going to pass him 4 that many exhibits.</p> <p>5 MR. ZELLERS: I'm happy to help 6 you.</p> <p>7 MS. BOCKUS: Thank you.</p> <p>8 EXAMINATION</p> <p>9 BY MS. BOCKUS:</p> <p>10 Q. Dr. Carson, my name is Jane 11 Bockus. I'm not certain I actually 12 introduced myself to you this morning, but I 13 represent Imerys in this litigation.</p> <p>14 Do you understand that?</p> <p>15 A. I do.</p> <p>16 Q. Before Mr. Abney contacted you 17 about preparing a report that would explain 18 the relationship between regular perineal use 19 of talc based on personal hygiene products 20 and subsequent development of ovarian cancer, 21 is that anything that you had researched 22 before that date?</p> <p>23 MS. O'DELL: Object to the 24 form.</p>
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<p>1 Q. What page of Exhibit 4 are you 2 looking at?</p> <p>3 A. Page 17 in the Ns.</p> <p>4 Q. Are you finished?</p> <p>5 A. There may be others in the 6 list, but you asked me to cite one. You want 7 me to continue looking?</p> <p>8 Q. No, I -- that is sufficient for 9 my purposes. Thank you.</p> <p>10 Dr. Carson, there have been 11 some studies where talc particles had been 12 observed or reported in the ovaries of women 13 who have had perineal talc use; is that 14 right?</p> <p>15 A. Yes.</p> <p>16 Q. Heller was one of the studies 17 that we talked about, correct?</p> <p>18 A. Correct.</p> <p>19 Q. In those studies, there has not 20 been inflammation noted; is that right?</p> <p>21 A. No, there -- that's not been an 22 important finding.</p> <p>23 MR. ZELLERS: I have no further 24 questions for you.</p>	<p>1 A. I don't think Mr. Abney -- 2 well, he may have been that detailed in our 3 discussion. But in response to your 4 question, that's not a specific question I 5 had researched in the past, although I had 6 researched related kinds of issues.</p> <p>7 BY MS. BOCKUS:</p> <p>8 Q. So would it be fair to say that 9 the opinions contained in your report are all 10 opinions that you have come to as a result of 11 doing the research at the request of 12 Mr. Abney and others in the plaintiffs' 13 lawyer group?</p> <p>14 MS. O'DELL: Object to the 15 form.</p> <p>16 A. Yes.</p> <p>17 BY MS. BOCKUS:</p> <p>18 Q. Okay. And I'm going to 19 apologize right now. I'll be jumping around 20 because most of my outline has already been 21 covered, so let me just get you to look at 22 your report, if I could, and I'm going to ask 23 you some questions about it.</p> <p>24 Turn to page 4, and</p>

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1 paragraph (b), the first sentence reads:
2 Numerous studies have examined the
3 cancer-causing characteristics of talc.
4 Do you see that?
5 A. Yes.
6 Q. And you identified Wilde as
7 your source for that statement, correct?
8 A. That is correct.
9 Q. Isn't it correct that the Wild
10 study actually exonerated talc as having
11 cancer-causing characteristics?
12 A. That was a conclusion of the
13 author, but the reason it's cited there is
14 because that's an example of the
15 investigation of the relationship.
16 Q. Okay. But in that study,
17 they -- he concluded that talc alone did not
18 cause cancer, correct?
19 A. As I recall, that was the
20 general conclusion, yes.
21 Q. Okay. Then in the next couple
22 of sentences, you say that talc has caused
23 cancer when implanted in various tissues and
24 under the skin in laboratory animals. It

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1 causes inflammation and fibrotic reaction,
2 including the chemotaxis of inflammatory
3 immune cells and accelerated growth and
4 division of cells in the involved tissue.
5 And you cite Okada 2007 for
6 that proposition; is that correct?
7 A. That's correct.
8 Q. But Okada wasn't even looking
9 at talc, was it?
10 A. Let me see here. Okada was
11 looking at inflammation as -- as the endpoint
12 in the various components of inflammation
13 which I talked about here, the chemotaxis of
14 inflammatory immune cells, accelerated growth
15 division in the involved tissues.
16 Q. But what you say is that talc
17 causes. When you say "it," you're referring
18 to talc, correct? It causes inflammation and
19 fibrotic reaction; isn't that what you're
20 saying in this sentence?
21 A. It is talc, yes.
22 Q. Okay. And yet, Okada, the
23 study that you cite for that proposition,
24 doesn't look at talc at all, does it?

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1 A. No.
2 Q. And then going on, you talk
3 about the fact that there in that same
4 paragraph, if you go down, you talk about
5 IARC and the fact that IARC concluded that
6 talcum powder use by women for feminine
7 hygiene is a possible human carcinogen;
8 that's not a classification of talc as a
9 carcinogen, correct?
10 MS. O'DELL: Object to the
11 form.
12 A. It is within the spectrum of
13 carcinogens.
14 BY MS. BOCKUS:
15 Q. It's possible.
16 A. That's correct.
17 Q. And then you say that --
18 meaning that there is insufficient evidence
19 of carcinogenesis in humans, but strong
20 evidence in other mammalian species.
21 Can you tell me where in IARC
22 it says that there is strong evidence that
23 talc causes ovarian cancer in other mammalian
24 species?

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1 A. I think the issue is not
2 specifically ovarian cancer; the issue is
3 cancer. And that's the point of view of
4 IARC, and that's what's alluded to here.
5 Q. So this is the one exhibit I'm
6 going to hand you, if I can get that one
7 marked by my assistant.
8 MR. ZELLERS: Exhibit 25.
9 (Carson Deposition Exhibit 25
10 marked.)
11 MS. O'DELL: This is a page out
12 of the monograph?
13 MS. BOCKUS: Yes.
14 MS. O'DELL: Are you going to
15 identify it?
16 MS. BOCKUS: And he can look it
17 up in his whole monograph. I just
18 pulled the page for simplicity.
19 MS. O'DELL: So feel free to do
20 that, Doctor.
21 MS. BOCKUS: Yes, page 412.
22 BY MS. BOCKUS:
23 Q. So looking at Exhibit 25, this
24 is a page from the IARC monograph where it

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1 talks about the data -- the evidence that
 2 they have and the evidence that they
 3 reviewed.
 4 Do you see that?
 5 A. That's correct.
 6 Q. And what they actually state
 7 with regard to experimental evidence is that
 8 there is limited evidence in experimental
 9 animals for the carcinogenicity of talc not
 10 containing asbestos or asbestiform fibers.
 11 Correct?
 12 MS. O'DELL: Object to the
 13 form.
 14 BY MS. BOCKUS:
 15 Q. Did I read it incorrectly?
 16 A. No, I just lost you for a
 17 moment.
 18 Q. It's one sentence. Go ahead
 19 and take your time and read it.
 20 A. Yes, I agree with that. They
 21 found that inhaled talc, which does not
 22 contain asbestos or asbestiform fibers, is
 23 Group 3.
 24 Q. That wasn't my question. I'm

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1 talking about experimental animals because
 2 that's what -- you state in your report that
 3 IARC found strong evidence in animals, and
 4 yet the part of IARC that I know of where
 5 they're addressing the animal data with
 6 regard to talc is what I handed you in
 7 Section 6.2, and it states there's limited
 8 evidence, correct?
 9 MS. O'DELL: Objection.
 10 A. It states that there's limited
 11 evidence -- I need to find this section in
 12 the monograph. Just bear with me for a
 13 moment. It's page 412?
 14 (Document review.)
 15 A. Okay. I seem to be missing
 16 that part of the monograph.
 17 MS. O'DELL: Do you have the 93
 18 monograph?
 19 THE WITNESS: Where's the --
 20 this is 100C, and this is 93. Okay.
 21 Here it is. All right. Okay.
 22 A. Okay. The entire monograph is
 23 designed to evaluate carcinogenic risk, and
 24 it looks at three different species, carbon

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1 black, titanium dioxide and talc.
 2 So regarding talc, the overall
 3 point of view here is whether or not it
 4 produces cancer, not just ovarian cancer, not
 5 just lung cancer, but any cancer.
 6 And so I'm not sure that that
 7 responds to your question.
 8 BY MS. BOCKUS:
 9 Q. No. My question was: You
 10 state in your report that IARC found strong
 11 evidence in animals, and I want to know where
 12 you believe that statement occurs in the IARC
 13 monograph, or do you know?
 14 MS. O'DELL: And if you need a
 15 minute to look, feel free to do that.
 16 A. Well, I can say that it might
 17 take me a while to look for it, but I can say
 18 that that's the basic definition of Group 2B,
 19 is limited evidence in humans and compelling
 20 evidence in animals or other --
 21 BY MS. BOCKUS:
 22 Q. Tell me where you're looking at
 23 that definition of 2B.
 24 A. Let me see here.

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1 Q. We earlier marked the...
 2 Exhibit 21, I think.
 3 A. Well, I have this other
 4 exhibit, which is the preamble from another
 5 situation; it's Exhibit P-346, and...
 6 Q. Well, let me just ask a
 7 different question, rather than looking at
 8 the preamble.
 9 A. All right.
 10 Q. Because that's kind of
 11 overarching.
 12 A. It is.
 13 Q. To know what IARC found with
 14 regard to talc and the evidence in animal
 15 models, wouldn't it be more appropriate to
 16 look at what they actually said about talc in
 17 the animal studies?
 18 A. Yes.
 19 MS. O'DELL: Objection, form.
 20 A. I would agree that that's the
 21 case.
 22 BY MS. BOCKUS:
 23 Q. And to your knowledge, nowhere
 24 did they find strong evidence of

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1 cancer-causing potential of talc in animal
 2 studies, correct?
 3 MS. O'DELL: Objection to form.
 4 A. Well -- well, it says on that
 5 page there's limited evidence in experimental
 6 animals, so I'll agree that at least in this
 7 location it does not say strong evidence.
 8 BY MS. BOCKUS:
 9 Q. And without going through the
 10 entire monograph, you don't know where that
 11 language came from, is that fair, that you
 12 used in your report?
 13 MS. O'DELL: Object. Excuse
 14 me. Object to the form. I think he
 15 was pointing -- directing you to the
 16 preamble and you withdrew your
 17 question, but --
 18 MS. BOCKUS: Well, let me just
 19 ask a qualifying question.
 20 BY MS. BOCKUS:
 21 Q. Does the preamble in any way
 22 address their findings with regards to talc?
 23 A. No, the preamble addresses the
 24 methodology that's used by the IARC agency in

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1 addressing all the substances that they
 2 evaluate.
 3 Q. Okay.
 4 A. And that's usually where I pull
 5 things like that.
 6 MS. O'DELL: Are you finished,
 7 Doctor?
 8 THE WITNESS: Unless I'm going
 9 to continue to search for this.
 10 BY MS. BOCKUS:
 11 Q. I don't need for you to look in
 12 the preamble, because I'm really only
 13 interested in their findings as to talc, not
 14 their overarching methodology, that sort of
 15 thing.
 16 A. Okay. But it's important to
 17 point out that this particular monograph is
 18 an evaluation of the carcinogenicity of talc
 19 that does not contain asbestos or asbestiform
 20 fibers, so --
 21 Q. Correct. Which was, from their
 22 view, the talc that was included in all of
 23 the studies that they reviewed, correct?
 24 MS. O'DELL: Objection,

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1 misstates the evidence.
 2 A. I believe that was their
 3 assumption.
 4 BY MS. BOCKUS:
 5 Q. Okay. The studies that you
 6 reference in support of the notion that
 7 asbestos in -- that may or may not exist in
 8 body powder contributes to cause ovarian
 9 cancer, none of the studies that you cite to
 10 have referenced an application of a product
 11 to the perineum of the women and girls study,
 12 correct?
 13 MS. O'DELL: Object to the
 14 form.
 15 THE WITNESS: I have a -- I
 16 apologize greatly, but I lost the
 17 track. Could you repeat that
 18 question.
 19 MS. BOCKUS: That's totally
 20 understandable because it was a little
 21 bit convoluted.
 22 MS. O'DELL: Do you mind if we
 23 get the realtime running again? We're
 24 just off track here.

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1 MS. BOCKUS: That's okay.
 2 BY MS. BOCKUS:
 3 Q. I'm looking on page 5. Do you
 4 see on page 5 of your report, sir,
 5 paragraph (c)?
 6 A. Yes.
 7 Q. And there you cite one, two,
 8 three, four, five, six, seven, eight, nine,
 9 10, 11, 12 studies, correct?
 10 A. Yes.
 11 Q. Do you speak Italian?
 12 A. I can read it pretty well.
 13 Q. Is that what you did for the
 14 Bertolotti study?
 15 A. The Bertolotti study. Yes, I
 16 read most of it. I may have kibitzed with
 17 some of my colleagues about the meaning of a
 18 few words.
 19 Q. At any rate, all of these
 20 studies have to do with heavy occupational
 21 exposure to asbestos, correct?
 22 MS. O'DELL: Object to the
 23 form.
 24 A. Yes.

<p style="text-align: right;">Page 298</p> <p>1 BY MS. BOCKUS:</p> <p>2 Q. And you don't have any</p> <p>3 information how the dose of asbestos to which</p> <p>4 these women were exposed during their heavy</p> <p>5 occupational exposure compares to any</p> <p>6 exposure to asbestos from the use of body</p> <p>7 powder, correct?</p> <p>8 A. Well, I think these were not</p> <p>9 all occupational exposures, but I do not have</p> <p>10 information regarding things like the route</p> <p>11 of exposure, no.</p> <p>12 Q. Do you have any information</p> <p>13 regarding the dose?</p> <p>14 A. No, I don't.</p> <p>15 Q. Do you have any information</p> <p>16 that would compare the dose of asbestos to</p> <p>17 which the women in these studies were</p> <p>18 exposed --</p> <p>19 A. Well, in some of the studies --</p> <p>20 Q. Wait, I haven't finished my</p> <p>21 question.</p> <p>22 A. Sorry.</p> <p>23 Q. -- to any alleged dose of</p> <p>24 asbestos in body powder?</p>	<p style="text-align: right;">Page 300</p> <p>1 microenvironment, and based on what we know</p> <p>2 about the mechanism of action of talc as well</p> <p>3 and even asbestos, they're all similar, and</p> <p>4 for that reason would be expected to be</p> <p>5 additive.</p> <p>6 Q. But the study hasn't been done</p> <p>7 even in a petri dish, has it?</p> <p>8 MS. O'DELL: Object to the</p> <p>9 form.</p> <p>10 A. I don't know if there's</p> <p>11 something in progress or not, but that's the</p> <p>12 kind of study that is currently being looked</p> <p>13 at. Combined exposures is the -- sort of the</p> <p>14 hallmark of research these days in</p> <p>15 toxicology.</p> <p>16 BY MS. BOCKUS:</p> <p>17 Q. Do you know of anyone who's</p> <p>18 looking at that question?</p> <p>19 A. I don't.</p> <p>20 Q. Okay. Have any of the heavy</p> <p>21 metals that you have identified been</p> <p>22 identified as carcinogenic to the ovary by</p> <p>23 IARC?</p> <p>24 A. No.</p>
<p style="text-align: right;">Page 299</p> <p>1 Can you make any comparison</p> <p>2 whatsoever to the amount of asbestos to which</p> <p>3 these women were exposed to any exposure by</p> <p>4 any woman who has used a Johnson & Johnson</p> <p>5 body powder?</p> <p>6 MS. O'DELL: Object to the</p> <p>7 form.</p> <p>8 A. I don't think I'm able to make</p> <p>9 that kind of comparison.</p> <p>10 BY MS. BOCKUS:</p> <p>11 Q. Okay. There are ways to study</p> <p>12 whether two toxins combined increase a risk</p> <p>13 more than exposure to a single toxin, whether</p> <p>14 it -- whether one offsets the risk of one of</p> <p>15 the toxins or whether you add them together,</p> <p>16 even multiply them together, right?</p> <p>17 A. Yes.</p> <p>18 Q. Has any such study ever been</p> <p>19 done with regard to talc and the heavy metals</p> <p>20 that you identify in your report?</p> <p>21 A. Not specifically a study to</p> <p>22 look at the combined contribution, but we</p> <p>23 know a lot about the mechanism of action of</p> <p>24 the metals in particular in the</p>	<p style="text-align: right;">Page 301</p> <p>1 Q. I want you to turn to page 7</p> <p>2 now, if you would, please, on other evidence.</p> <p>3 And you've talked about this paragraph a fair</p> <p>4 amount already, and I don't want to repeat</p> <p>5 any of the prior questions.</p> <p>6 But I want to ask you about the</p> <p>7 statement in that first sentence, where you</p> <p>8 say that transport of talc-containing</p> <p>9 materials from the perineum to the upper</p> <p>10 reproductive tract and body cavities has been</p> <p>11 shown to occur with startling regularity.</p> <p>12 And I want to stop right there.</p> <p>13 If I recall your testimony</p> <p>14 correctly, none of these studies even look at</p> <p>15 the transport of talc-containing materials</p> <p>16 from the perineum to the upper reproductive</p> <p>17 tract; isn't that correct?</p> <p>18 MS. O'DELL: Object to the</p> <p>19 form.</p> <p>20 A. Well, it is true that most of</p> <p>21 the research that's been done in this area</p> <p>22 has been done on materials that have been</p> <p>23 instilled into the vagina or the posterior</p> <p>24 fornix, but I think and it's my opinion that</p>

<p style="text-align: right;">Page 302</p> <p>1 application to the perineum is equivalent to 2 that. 3 Q. Do you have an opinion as to 4 what percentage of the talcum powder applied 5 in a daily dusting to the perineum makes its 6 way to the vagina? 7 A. No, I don't know. 8 Q. Do you have an opinion as to 9 what percentage of the talc that, in your 10 opinion, would make its way to the vagina 11 would actually make its way to the cervix? 12 A. I don't know that either. 13 Q. And out of the talc that makes 14 its way to the cervix, what percentage makes 15 it past the cervix into the uterus? 16 A. That, I don't know either. 17 Q. Do you have any reason to 18 believe that talc would migrate with more 19 frequency or rapidity than sperm? 20 MS. O'DELL: Objection to form. 21 A. No, I don't have reason to 22 believe that would be the case. 23 BY MS. BOCKUS: 24 Q. Would you agree, in fact, that</p>	<p style="text-align: right;">Page 304</p> <p>1 those studies that you list here done in 2 women who were standing up? 3 A. The studies that I list in 4 other evidence? 5 Q. Yes. 6 A. I think not. 7 Q. In fact, were any of them done 8 in women who were inclined with their head 9 elevated over their hips? 10 A. No. 11 Q. So my question is: Where do 12 you get the term "startling regularity" with 13 regard to the transport of talc from outside 14 a woman's body to the upper reproductive 15 tract? 16 MS. O'DELL: Object to the 17 form. 18 A. The propensity of evidence of 19 rapid transport of particulate material 20 regarding -- regardless of its composition. 21 BY MS. BOCKUS: 22 Q. Particulate material inserted 23 well into a woman's vagina whose hips are 24 above her head, correct?</p>
<p style="text-align: right;">Page 303</p> <p>1 it is unlikely that talc, an inert particle, 2 would travel as quickly or in the same 3 percentages as sperm through the reproductive 4 tract? 5 MS. O'DELL: Object to the 6 form. 7 A. I think the transport time is 8 roughly the same for any particulate matter, 9 including sperm. 10 BY MS. BOCKUS: 11 Q. Do you have any studies to 12 support that opinion? 13 A. Well, we know -- we know the -- 14 we know the velocity of motile sperm; it's 15 very slow. And we have studies that have 16 shown the progression of particles through 17 the fallopian tubes at at least that fast a 18 rate, possibly faster. 19 And so the motility of sperm is 20 slower than the rate at which it passes 21 through the female reproductive system, so 22 there are obviously other mechanisms at play 23 other than sperm motility. 24 Q. To your knowledge, were any of</p>	<p style="text-align: right;">Page 305</p> <p>1 MS. O'DELL: Objection to form. 2 A. Well, we have other studies 3 too. We have the powdered glove examination 4 studies, things of that nature, that are a 5 little bit different. 6 BY MS. BOCKUS: 7 Q. And you believe they support 8 your conclusion that talc is transported from 9 the perineum to the upper reproductive tract 10 with startling regularity? 11 A. I think that's a valid 12 conclusion supported by the evidence, yes. 13 Q. I'm turning to page 8 now, and 14 the number that you have here -- and you've 15 repeated it a couple of times today -- about 16 your opinion that the elimination of talc as 17 a risk could result in over 3,000 lives saved 18 in the U.S. each year. 19 How did you come to that 20 conclusion? 21 A. Well, I'm referring to talcum 22 powder here -- 23 Q. Okay. Sure. 24 A. -- which is the complete</p>

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1 product.

2 I came to that conclusion based

3 on the number of new cases of ovarian cancer

4 that are diagnosed in the United States each

5 year and the number of ovarian cancer deaths

6 that occur each year.

7 And essentially, of 21,000 or

8 so cases of -- new cases of ovarian cancer,

9 there are corresponding 14,000 or more deaths

10 each year, so that's a two-thirds fatality

11 rate if you look over time.

12 The -- at 30% increase in the

13 risk of -- or a 30% increase in the risk of

14 cancer applied in reverse, that is reducing

15 those -- that 30% increased risk from the use

16 of perineal application of talcum powder

17 could result in the prevention of as many as

18 3,000 lives, depending on the prevalence of

19 use.

20 Q. Would that calculation require

21 that 100% of the women in the U.S. be using

22 talcum powder on a daily basis?

23 A. It would require a hundred

24 percent of the women in the U.S. to stop

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1 using talcum powder on a daily basis.

2 Q. That wasn't my question.

3 In order to attribute --

4 A. Well, my answer to your

5 question then is no.

6 Q. In order to attribute 30% of

7 all ovarian cancer deaths to the use of

8 talcum powder -- let me back up.

9 The data that you have that

10 you've cited is talking about the percentage

11 of women -- the percentage of women who use

12 talcum powder who are diagnosed with ovarian

13 cancer, correct?

14 MS. O'DELL: Object to the

15 form.

16 A. It is the total number of new

17 diagnoses per year.

18 BY MS. BOCKUS:

19 Q. Okay.

20 A. I think last year was

21 22,000-something.

22 Q. But that number, 22,000, 100%

23 of those women did not use talcum powder,

24 correct?

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1 A. There may not have been use of

2 talcum powder in all those women, that's

3 correct.

4 Q. Do you have any notion as to

5 what percent of those women may have used

6 talcum powder?

7 A. Based on these various studies,

8 it seems to vary between 30 and 60%. It's

9 more so in the U.S., Australia and the U.K.

10 Q. Do you have an opinion as to

11 how regularly a women needs to use talcum

12 powder before her risk of ovarian cancer is

13 increased by 30%?

14 A. Well, based on the epidemiology

15 studies, that risk occurs in the population

16 in general from ever use as opposed to never

17 use, and so it would depend on the individual

18 woman.

19 Each person has an individual

20 susceptibility and individual characteristics

21 and would probably have an individual use

22 pattern. So I couldn't say for any

23 individual woman.

24 Q. And that's not what I'm asking

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1 for. I'm really asking for in general,

2 because that's what epidemiology is, correct?

3 It's not talking about an individual woman,

4 right?

5 A. That's correct, it's describing

6 it in the population.

7 Q. So in the population, in the

8 studies that you've reviewed, what is the

9 minimum number of days per month, or however

10 you want to describe it, that a woman would

11 need to use talcum powder before she would be

12 included in the group that you believe have a

13 30% increased risk of ovarian cancer?

14 MS. O'DELL: Object to the

15 form.

16 A. The only qualifier that I've

17 been able to come up with and that I've used

18 in this report is the regular use of talcum

19 powder.

20 BY MS. BOCKUS:

21 Q. Okay.

22 A. And that is going to vary over

23 a broad range. It would be periodically

24 daily to several times a week would be

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1 regular use.
 2 Q. And over how many years must a
 3 woman use talcum powder on a regular basis
 4 before her risk of ovarian cancer is
 5 increased to 30% --
 6 MS. O'DELL: Object to the
 7 form.
 8 BY MS. BOCKUS:
 9 Q. -- in your opinion?
 10 MS. BOCKUS: Sorry.
 11 A. Some of the studies have
 12 focused on usage periods as short as one
 13 year, but most have studied longer periods of
 14 use and separated use into things like
 15 decades or accumulated total person-years
 16 based on reports of the women, multiplying
 17 frequency by time.
 18 So again, it would depend on
 19 the individual, but the research reports
 20 hover around five to ten years of regular
 21 use, resulting in significant odds ratios.
 22 BY MS. BOCKUS:
 23 Q. As I understand it in
 24 toxicology, one of the basic tenets is that

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1 it's the dose that makes the poison, correct?
 2 A. That's correct.
 3 Q. That water can kill you if you
 4 drink too much of it, right?
 5 A. Theoretically.
 6 Q. In a short period of time.
 7 And so I'm trying to find out
 8 what you have determined is the threshold of
 9 risk is -- for talcum powder use by women.
 10 Do you have an opinion as to at what point a
 11 threshold has been reached where the use of
 12 talcum powder by women in their perineal
 13 region increases their risk?
 14 A. I think any use of carcinogenic
 15 materials or any exposure to carcinogenic
 16 materials increases the risk somewhat. A
 17 greater exposure, based on the
 18 "dose makes the poison" principle, would
 19 result in a greater risk.
 20 And we know from toxicologic
 21 studies that intense exposures can sometimes
 22 accelerate the process and even shorten the
 23 latency period of a carcinogenic event.
 24 So my opinion is that there is

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1 no threshold of exposure for risk; that we
 2 are -- we are right to use a zero threshold
 3 approach until we know more about the
 4 possibility of a threshold below which
 5 exposure would be safe. At the current time
 6 we don't have that information.
 7 Q. Do you believe that there
 8 probably is a threshold below which use is
 9 safe?
 10 A. In the carcinogenic process,
 11 which we haven't really talked about in this
 12 session today, there is an insult to a cell
 13 which affects the genetic material, the DNA.
 14 And there are built-in repair mechanisms that
 15 the cell has for fixing that problem that
 16 occurred, a mutation, for example.
 17 These kinds of insults are
 18 happening to cells all the time, not just
 19 from carcinogens in our environment, but just
 20 from natural occurrences, even endogenous
 21 biochemical reactions cause these problems.
 22 The question is: Is the repair
 23 process sufficient to undo what's been done?
 24 And an exposure to environmental carcinogens,

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1 that repair process is often overwhelmed so
 2 that it cannot catch up with the damage
 3 that's being created, and a tumor is born,
 4 basically.
 5 That is where the concept of
 6 threshold comes from. Have we overwhelmed
 7 the repair or not, and we don't have enough
 8 research evidence or scientific evidence to
 9 be able to define that line at this point.
 10 Q. Has there ever been a study
 11 that showed that talcum powder caused DNA
 12 damage in normal ovarian epithelial tissue?
 13 A. Well, we do have the studies
 14 that have recently been produced by Fletcher
 15 and Saed that show the inflammatory process
 16 is influenced by talc, and this is nonfibrous
 17 talc, that result in mutagenic events that
 18 are available for promotion, and there are
 19 biomarkers that have also been established
 20 for that.
 21 Q. The studies by Saed did not
 22 demonstrate DNA mutation, did they?
 23 MS. O'DELL: Object to the
 24 form.

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1 A. I think they actually did.
2 BY MS. BOCKUS:
3 Q. That's your reading of them?
4 A. Yes.
5 Q. What Saed did is he placed talc
6 on cultured ovarian cancer cells, correct?
7 A. Yes.
8 Q. And that actually -- what he
9 recorded was an elevation in the CA-125?
10 A. That's one of the things he
11 did. He also measured -- he did a number of
12 genetic studies. He did transcribed RNA. He
13 located individual SNPs, which are single
14 nucleotide polymorphisms, in the genetic
15 material.
16 And he found that as a result
17 of that treatment, those mutations altered
18 the effectiveness of antioxidant enzymes that
19 are part of the protection mechanism and
20 shield the repair process of the cell from
21 further damage.
22 Q. Let's go back to the CA-125.
23 MS. O'DELL: If you need to
24 pull the paper out, Doctor, just, if

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1 you want to take a moment and do that.
2 I know you were searching for it while
3 you were talking.
4 THE WITNESS: Yes, I think I
5 have it right here.
6 MS. BOCKUS: These are just
7 general questions that I'm going to
8 ask you.
9 MS. O'DELL: You still may get
10 the paper out.
11 MS. BOCKUS: Do whatever you
12 want to do.
13 THE WITNESS: You can go ahead.
14 I'm...
15 BY MS. BOCKUS:
16 Q. What controls did Saed use?
17 Did he use any controls? In other words, did
18 he place a known foreign object that was
19 not -- that was known not to be a carcinogen
20 on the cultured ovarian cells to see if there
21 was a difference?
22 MS. O'DELL: Can you just pause
23 just for a minute, let the doctor pull
24 out the exhibit?

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1 THE WITNESS: I'm sorry, it
2 appears that I do need to get the
3 original paper here. There it is.
4 Okay. Thank you.
5 (Document review.)
6 BY MS. BOCKUS:
7 Q. Can you answer the question:
8 Did Saed have any either positive or negative
9 controls that he used in his experiments?
10 MS. O'DELL: Object to the
11 form.
12 A. I think he did, but I'd like to
13 actually find it in here so I can give you
14 the specifics.
15 Well, he used normal cells and
16 epithelial ovarian cancer cells, and one was
17 the control for the other. He treated them
18 in the same way.
19 BY MS. BOCKUS:
20 Q. Let me ask a different
21 question.
22 What I'm asking is: Did he
23 use, say, glass beads to see if -- as a
24 control to the talc? Did he have anything

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1 that he was controlling the cells' reaction
2 to against the talc?
3 A. I don't believe so.
4 Q. That would be important in an
5 experiment of this nature, would you not
6 agree with that?
7 MS. O'DELL: Object to the
8 form.
9 A. Well, he did utilize normal and
10 cancerous cells, which would theoretically
11 act as a control in that experiment.
12 BY MS. BOCKUS:
13 Q. That's not my question. I'm
14 really asking about another element that he
15 is exposing the cells to, both the normal and
16 the cancerous cells.
17 MS. O'DELL: Objection to form.
18 BY MS. BOCKUS:
19 Q. To see if the reaction was just
20 a reaction to a foreign body versus talc
21 specifically.
22 Did he do that?
23 MS. O'DELL: Object to the
24 form.

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1 A. I don't believe that he
2 provided a control exposure as part of this
3 experiment.
4 BY MS. BOCKUS:
5 Q. And you would agree that there
6 are many things that will increase a CA-125,
7 correct?
8 MS. O'DELL: Object to the
9 form.
10 A. Yes, it's an acute-phase
11 reactant.
12 BY MS. BOCKUS:
13 Q. Pregnancy can increase
14 somebody's CA-125?
15 A. That's correct.
16 Q. And with regard to the SNPs,
17 that is not the same thing as a test showing
18 mutation, correct?
19 MS. O'DELL: Object to the
20 form.
21 BY MS. BOCKUS:
22 Q. It's a surrogate.
23 A. Well, it's because there was
24 transcribed RNA that was used to determine

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1 their presence, and the -- it's just part of
2 their procedure, but it identifies genetic
3 alterations. And those genetic alterations
4 transformed into differential enzyme
5 activities.
6 Q. Do you know whether there are
7 standard tests for genotoxicity and
8 mutagenicity?
9 A. There are lots of standard
10 tests, yes.
11 Q. And Saed didn't use any of
12 those, did he?
13 MS. O'DELL: Object to the
14 form.
15 A. Well, he went directly to cells
16 in culture to see what happened when they
17 were treated with talc.
18 BY MS. BOCKUS:
19 Q. Does the amount of talc that
20 Saed used compare in any way to the amount of
21 talc that may reach a woman's ovary from
22 perineal application?
23 MS. O'DELL: Object to the
24 form.

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1 A. I don't specifically know.
2 BY MS. BOCKUS:
3 Q. There's no way to know that, is
4 there?
5 A. No, there's not.
6 Q. Let me find my -- there we go.
7 The Saed paper that you were
8 looking at just a minute ago, it has
9 something printed across it. What does that
10 say?
11 A. In blue here?
12 Q. Uh-huh.
13 A. "For Peer Review."
14 Q. Okay. So it hasn't yet been
15 peer reviewed; is that correct?
16 MS. O'DELL: Object to the
17 form.
18 A. It's been submitted.
19 BY MS. BOCKUS:
20 Q. So does that mean it has not
21 yet been peer reviewed?
22 MS. O'DELL: Object to the
23 form.
24 A. I think it's been accepted for

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1 publication.
2 BY MS. BOCKUS:
3 Q. But the copy you have says on
4 it "For Peer Review," correct?
5 A. That's correct.
6 Q. In the paragraph that we were
7 looking at earlier, where you were talking
8 about the startling regularity, later on in
9 the paragraph you state that there
10 is clearly -- sufficient particulate
11 materials applied routinely to the perineum
12 have ready access and in sufficient
13 quantities to produce biologic responses in
14 internal tissues.
15 What internal tissues have you
16 seen any study recording a biologic response
17 to talc from?
18 That was such a bad question,
19 I'm going to ask it again.
20 What internal tissues are you
21 referring to there?
22 A. Well, it says including --
23 including ovaries and surrounding structures.
24 By surrounding structures, I'm referring to

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1 the fallopian fimbriae and the epithelium of
 2 the cavity.
 3 Q. So -- and I know we've been
 4 through this already, but to your knowledge,
 5 there are no studies reporting biologic
 6 responses to talc in the vagina, correct?
 7 A. Not that I'm aware.
 8 Q. You're not aware of any studies
 9 reporting biologic responses to talc in the
 10 cervix, correct?
 11 A. Correct.
 12 Q. Are you aware of any studies
 13 reporting biologic response to the uterus?
 14 A. No.
 15 Q. Are you aware of any studies
 16 reporting a biologic response in the
 17 fallopian tubes?
 18 MS. O'DELL: Object to the
 19 form.
 20 A. Well, I don't -- I'm not aware
 21 of studies that draws a direct correlation
 22 between exposure to talc and reaction in the
 23 fallopian tubes.
 24 ///

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1 BY MS. BOCKUS:
 2 Q. Okay. Is the ovary attached to
 3 the fallopian tube?
 4 A. It is -- it's in the proximity.
 5 It's not directly attached.
 6 Q. And what surrounds the ovary?
 7 A. There's a structure that -- the
 8 ovary itself?
 9 Q. Yes.
 10 A. There's an epithelial membrane
 11 around the ovary, and --
 12 Q. And then what touches the
 13 epithelial membrane?
 14 A. Well, the fimbriae of the
 15 fallopian tubes surround that and the rest of
 16 it is just sort of space.
 17 Q. Space. Is the space filled
 18 with fluid?
 19 A. It is.
 20 Q. And is that fluid kind of
 21 moving around?
 22 A. All the time.
 23 Q. All the time.
 24 So things that come through the

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1 fallopian tube goes into that fluid and just
 2 gets moved around all the time; is that
 3 correct?
 4 MS. O'DELL: Objection. Excuse
 5 me. Objection, form.
 6 A. Well, there's a fairly direct
 7 presentation of the ovary, so there's not a
 8 large space there, but there is a space. And
 9 whatever goes into that space remains there.
 10 Some of it may come back out.
 11 BY MS. BOCKUS:
 12 Q. Does the fallopian tube move
 13 around during the month?
 14 MS. O'DELL: Object to the
 15 form.
 16 A. I don't know.
 17 MS. BOCKUS: I'm almost
 18 finished. I'm going through all the
 19 things that I've crossed off.
 20 BY MS. BOCKUS:
 21 Q. So I understand you correctly,
 22 you have not identified a nonthreshold dose
 23 of talc; is that correct?
 24 MS. O'DELL: Object to the

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1 form.
 2 A. You mean a dose that is below a
 3 safe threshold?
 4 BY MS. BOCKUS:
 5 Q. Correct.
 6 A. No, I have not.
 7 Q. Did you make any attempt to
 8 extrapolate a de minimis risk level?
 9 MS. O'DELL: Object to the
 10 form.
 11 A. I did not. It would be nice to
 12 be able to do that, considering that most of
 13 us have had talcum powder exposures of one
 14 sort or another during our lives. And it's
 15 something that seems to have been felt to be
 16 very useful.
 17 So it would be nice to be able
 18 to do that exercise, but I haven't -- I have
 19 not been prevented -- presented with the
 20 information to approach that, nor am I aware
 21 of anyone else who's been able to do it.
 22 BY MS. BOCKUS:
 23 Q. What information would you need
 24 that you don't have?

<p style="text-align: right;">Page 326</p> <p>1 A. Well, we'd need -- we'd need 2 dose information, first of all, which we 3 don't have, to combine with the epidemiologic 4 results. 5 We need to define the 6 mechanistic issues better than they are 7 currently, and at that point I think we would 8 be able to make some strong conclusions 9 regarding potential thresholds of hazardous 10 doses. 11 Q. You would agree that the great 12 majority of women who use talcum powder on a 13 regular basis are never diagnosed with 14 ovarian cancer, correct? 15 A. I think that's true. 16 Q. And it's also true that the 17 majority of women diagnosed with ovarian 18 cancer have never used talcum powder on a 19 regular basis, correct? 20 MS. O'DELL: Object to the 21 form. 22 A. I think it's a majority, but 23 there's a significant number who have. 24 ///</p>	<p style="text-align: right;">Page 328</p> <p>1 you? In other words, are they referred by 2 other people? 3 A. I have primarily a referral 4 practice in toxicology. 5 Q. In toxicology? And so what 6 types of patients are referred to you? 7 A. I have patients who are either 8 workplace-related patients who have had 9 chemical or other substance exposures. I 10 also have a number of environmental exposure 11 patients that I see. 12 And I also have a number of -- 13 I also see a number of patients for general 14 routine surveillance activities or required 15 exams by regulation, either for licensure or 16 certification. 17 Q. Are you sent patients where the 18 patient is trying to figure out why they got 19 some disease? 20 A. Sometimes. Usually the patient 21 comes and tells me why they got the disease, 22 and I go -- I talk to them about the 23 possibilities, and we look at ways of 24 confirming that or refuting it, or in many</p>
<p style="text-align: right;">Page 327</p> <p>1 BY MS. BOCKUS: 2 Q. But the majority have not, 3 correct? 4 A. I would say more than 50% have 5 not. 6 Q. And would you agree that -- let 7 me back up. 8 When is the last time you 9 conducted a pelvic exam? 10 A. I haven't done one in a couple 11 of years. 12 Q. Under what circumstances did 13 you do it two years ago? 14 A. I see patients regularly, and 15 in some cases, pelvic exams are either 16 requested or indicated by the issue. 17 Q. It's not something you do on a 18 regular basis, correct? 19 A. It's not. 20 Q. And you do not -- what 21 percentage of your patients are women? 22 A. Probably half, maybe a little 23 less than half. 24 Q. How do patients come to see</p>	<p style="text-align: right;">Page 329</p> <p>1 cases, altering to a correct path of 2 diagnostic investigation. 3 Q. So sometimes a patient comes to 4 you and says: I was exposed to this chemical 5 and that's why I can't breathe? 6 A. Yes. 7 Q. And you do an investigation, 8 and sometimes you say: You know what, that 9 chemical has nothing to do with why you can't 10 breathe? 11 A. Sometimes that's the case. 12 MS. O'DELL: Are you finished, 13 sir? Are you finished? 14 A. Well, I just wanted to add -- 15 BY MS. BOCKUS: 16 Q. Sure. 17 A. -- that although many times it 18 is the case, and often the patient does 19 understand that connection quite well, 20 usually from a very closely connected cause 21 and effect kind of relationship. It's when 22 things are stretched out much more in time, 23 and there is a likely suspect that may be an 24 innocent bystander, that they may get</p>

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1 confused.
 2 Q. Have you ever been referred a
 3 patient to determine why they have ovarian
 4 cancer?
 5 A. No.
 6 Q. Do you know of any methodology
 7 accepted in the medical community for
 8 determining why an individual woman has
 9 developed ovarian cancer?
 10 MS. O'DELL: Object to the
 11 form.
 12 A. Other than genetic testing that
 13 identifies specific risks and history taking
 14 that might identify other known risk factors
 15 for that woman, there is -- I don't believe
 16 that there is any good or prescribed
 17 procedure for making that determination, and
 18 there is no reasonable screening test that
 19 can find that cancer when it is at an early
 20 stage.
 21 BY MS. BOCKUS:
 22 Q. Do you believe that obesity
 23 causes ovarian cancer?
 24 A. It certainly seems to be

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1 related to the occurrence of ovarian cancer
 2 from a statistical point of view.
 3 Q. What is the increase in a
 4 woman's risk of ovarian cancer if she's obese
 5 compared to a nonobese woman?
 6 A. In terms of numbers?
 7 Q. Yes, sir.
 8 A. I don't know the -- I don't
 9 know the numbers.
 10 Q. What other risk factors are you
 11 familiar with for ovarian cancer?
 12 A. Well, certainly work with
 13 asbestos is a risk factor, and we have a
 14 number of studies that have shown women
 15 working in the asbestos industry or women who
 16 are married to asbestos workers and have
 17 secondary exposure presumably from that are
 18 at risk for ovarian cancer.
 19 There are --
 20 Q. Let me stop you just one
 21 second.
 22 A. Yes.
 23 Q. What percentage -- what is
 24 their relative risk or what is the odds ratio

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1 for that population of women?
 2 A. Well, it varies depending on
 3 the research study that has been done, but
 4 I've seen odds ratios or relative risks all
 5 the way from 1 or even below to very high
 6 numbers, like 20 to 50.
 7 Q. 20.0, is that what you're
 8 saying?
 9 A. Yes, 20.0.
 10 Q. Not 1.2, but 20.0?
 11 A. Correct.
 12 Q. Okay.
 13 A. Which is a -- which would be 20
 14 times the normal risk without the exposure.
 15 Q. Okay. So we've got obesity and
 16 heavy exposure to asbestos. Any other risk
 17 factors that you're familiar with?
 18 MS. O'DELL: Objection --
 19 excuse me. Objection, misstates the
 20 doctor's testimony.
 21 You may answer.
 22 THE WITNESS: Okay.
 23 A. Other risk factors for ovarian
 24 cancer would include things like early

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1 menarche, late menopause, never being
 2 pregnant. These are some of the more common
 3 risk factors that are identified.
 4 There are genetic risk factors
 5 that are known, like the BRCA mutations,
 6 which confer an increased risk. Family
 7 history.
 8 BY MS. BOCKUS:
 9 Q. Do you know the odds ratios of
 10 any of the risk factors that you just
 11 identified of never having children, having
 12 early menarche or late menopause?
 13 A. Right offhand, I don't know
 14 what those odds ratios -- the range of those
 15 are.
 16 Q. Do you know if any of those
 17 odds ratios exceed 1.3?
 18 A. I think they do.
 19 Q. Does that lead you to conclude
 20 that those things cause ovarian cancer?
 21 A. It certainly argues for that.
 22 The -- there's a risk factor that derives
 23 from something. You need a mechanism to fill
 24 in the blank.

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1 But also, some of these risk
 2 factors are so common in the population that
 3 we can concoct large cohort studies that will
 4 have -- can have very low relative risks,
 5 like on the order of 1.3 or even lower, and
 6 still a significant result.
 7 So the more common a factor is,
 8 the easier it is to do the research and the
 9 more likely you'll get a finding that's
 10 relevant to interpretation.
 11 Q. What pushes a talc particle
 12 from the perineum into the vagina?
 13 A. Probably mostly the law of mass
 14 action. It simply goes of its own volition.
 15 These small particles are always in motion
 16 through molecular forces, and they simply
 17 move in all directions, and some of them move
 18 in that direction.
 19 Q. Would that be true for any
 20 small particles applied to a woman's
 21 perineum?
 22 A. Yes.
 23 Q. Are you board certified in
 24 medical toxicology?

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1 A. I'm not. I started practicing
 2 medical toxicology before there was a board
 3 in the specialty, and I've been grandfathered
 4 into the profession as a member of the
 5 American College of Medical Toxicology.
 6 Q. How long did you talk to
 7 Dr. Ness about her paper?
 8 A. About her paper, probably a
 9 minute and a half. About all kinds of other
 10 things, for a while.
 11 Q. What other kinds of things?
 12 A. Mostly personal things that had
 13 nothing to do with talc or this case.
 14 Q. How long do you think that
 15 conversation was?
 16 A. Well, with Dr. Ness, nothing
 17 lasts very long, so I would say ten minutes
 18 at the most.
 19 Q. Okay. Did you call her?
 20 A. No. She's -- she comes and
 21 goes in the same building where I office, and
 22 my office is just on the opposite side of the
 23 floor of hers, and I see her sometimes in
 24 passing or in the elevator.

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1 Q. So you think you just ran into
 2 her?
 3 A. Yeah.
 4 Q. The other people that you
 5 identified that you discussed your report
 6 with, did you ask them to read your report?
 7 A. I asked them to look at parts
 8 of it, early drafts of it to let me know if
 9 they thought I was making sense.
 10 Q. And did they offer you comments
 11 and suggestions for changes in your paper?
 12 A. Not really. Mostly they gave
 13 me a pat on the back and said: I think
 14 you're doing a good job, just sort of beef
 15 this part up, and what do you mean by this,
 16 maybe I could rephrase that. That sort of
 17 thing.
 18 Q. Did they give you written
 19 suggestions?
 20 A. No, these were all verbal
 21 comments.
 22 Q. Had you given them a hard copy
 23 of the portions of your report that you
 24 wanted them to comment on?

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1 A. Yes.
 2 Q. And they didn't redline it or
 3 make -- draw arrows or anything like that for
 4 you?
 5 A. I think actually George Delclos
 6 did draw some -- or make some notes on there
 7 and hand it back to me, and I incorporated
 8 those into my electronic version.
 9 Q. Do you still have George's
 10 notes to you?
 11 A. No, I don't.
 12 Q. Is he the only one out of the
 13 people that you asked to look at it who gave
 14 you handwritten notes?
 15 A. Yes, I think so.
 16 Q. Have you seen the term
 17 "intrinsic elimination system" regarding the
 18 ovary in any of the publications that you've
 19 read?
 20 A. I don't know, I may have.
 21 Q. Can you think of one in
 22 particular that discusses that characteristic
 23 of -- that you believe relates to the ovary?
 24 A. Well, the migration papers

<p style="text-align: right;">Page 338</p> <p>1 discuss migration to the ovary. It would 2 probably be a talc paper, though. I don't 3 recall seeing it anywhere. 4 Q. Did you consult any gynecologic 5 textbooks? 6 A. No, I didn't. I may have 7 looked at some diagrams on the Internet. 8 Q. Okay. Did you consult any 9 gynecologic oncology textbooks? 10 A. Not textbooks, no. 11 Q. Do you know the position of the 12 Society of Gynecologic Oncologists on the 13 question of whether does talc increase a 14 woman's risk for ovarian cancer? 15 A. No, I don't. 16 Q. Would that be important to you 17 to know their position? 18 A. No, I don't think so. 19 Q. Do you know the position of 20 ACOG on whether the use of -- perineal use of 21 talc increases a woman's risk of ovarian 22 cancer? 23 A. I don't know that either. 24 That's not something I've looked at.</p>	<p style="text-align: right;">Page 340</p> <p>1 that? 2 A. Well, I saw this actually when 3 I first started this process, and I think 4 Dr. Longo was involved in that activity, 5 where they modeled the -- the application of 6 talcum powder and did some calculations based 7 on the amount of substance that was used, and 8 they measured it in things like shakes and -- 9 and then quantified the amount that was lost 10 from the container to determine what an 11 application amount was. 12 I don't think they were able to 13 go beyond that point in the modeling process. 14 Q. You didn't see anything that 15 Dr. Longo did that attempted to quantify the 16 amount of talcum powder from a single shake 17 that ended up on a woman's perineum, did you? 18 MS. O'DELL: Object to the 19 form. 20 A. I -- you know, I don't know the 21 answer to that, simply because I don't 22 recall, but I wouldn't be surprised that 23 there was an attempt made to do that. But 24 beyond that, I don't think anything would be</p>
<p style="text-align: right;">Page 339</p> <p>1 Q. Would that be important to you? 2 A. No. 3 Q. Do you have any scientific text 4 that suggests that an inert particle resides 5 on the ovary longer than it does in the 6 cervix? 7 A. Well, I have -- I have a paper 8 that relates to the time for dissolution of a 9 particle in biological fluids, which would go 10 to the length of time a particle of talc 11 remains in the ovary once it gets there. 12 But I don't have -- I don't 13 know that I have a scientific paper that 14 specifically says that it stays in the ovary 15 longer than it stays in the cervix. 16 Q. You testified that you 17 understand there have been some attempts to 18 quantify the amount of talc, I guess from a 19 single use, that ends up on the perineum. 20 Did I understand that 21 correctly? 22 A. Yes. 23 Q. Can you tell me what those 24 attempts are, who did them, where did you see</p>	<p style="text-align: right;">Page 341</p> <p>1 successful. 2 These were clothed subjects, so 3 that adds another factor to the calculation. 4 BY MS. BOCKUS: 5 Q. Is that the only experiment 6 that you're familiar with that you've seen 7 anywhere that attempts to quantify the amount 8 of talcum powder from a single use that ends 9 up actually on a woman's perineum? 10 A. There was another part of that 11 study where they applied it to underwear with 12 the same sort of calculation process. It was 13 all part of the same modeling process. 14 Q. And do you recall what 15 percentage of the talc applied to the 16 underwear ended up adhered to the woman's 17 perineum? 18 MS. O'DELL: Object to the 19 form. 20 A. I don't think -- I don't think 21 they measured the amount that adhered to the 22 perineum. I think what they were interested 23 in was proximity. 24 ///</p>

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1 BY MS. BOCKUS:
 2 Q. Okay. Can you tell me the
 3 names of the environmental websites that have
 4 been talking about IARC revisiting their
 5 classification of talc?
 6 A. There are -- there are a number
 7 of Twitter feeds and websites that carry on
 8 this kind of discussion. Science Interest is
 9 one of them. I think IARC Watch is another
 10 one. I have -- I get e-mails about some of
 11 these and end up going into them for a period
 12 of time and seeing if they have anything
 13 interesting going on. Some of them are
 14 searchable.
 15 And then I get e-mails from the
 16 ones that I visit about other ones. So I
 17 spend as much of my time deleting these
 18 e-mails without reading them as I do actually
 19 viewing the material.
 20 Q. So fair to say this is just
 21 chatter you've seen on the Internet in these
 22 different chat rooms or Twitter accounts that
 23 you visit from time to time?
 24 A. It's all Internet based, yes.

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1 MS. BOCKUS: Okay. I think
 2 that's all I have. Thank you.
 3 MS. O'DELL: Why don't we take
 4 a short break. We've been going about
 5 two hours.
 6 MR. ZELLERS: Do you have
 7 questions?
 8 MS. APPEL: I do, but --
 9 MS. O'DELL: Yeah, do you
 10 have --
 11 MS. APPEL: I don't have a lot.
 12 MS. O'DELL: Okay. Sure. Why
 13 don't you go ahead, and then we'll
 14 take a break. We have been going
 15 about two hours, but, Renée, please.
 16 If you're okay, Doctor.
 17 THE WITNESS: I'm fine.
 18 EXAMINATION
 19 BY MS. APPEL:
 20 Q. It's been a while since we did
 21 introductions, so just as a reminder, my name
 22 is Renée Appel and I'm here on behalf of
 23 Seyfarth Shaw and I represent Personal Care
 24 Products, counsel.

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1 A. Uh-huh.
 2 Q. And echoing what my colleagues
 3 have said today, if there's at any point I
 4 ask a question that you do not understand,
 5 just stop me and ask me to rephrase it or let
 6 me know otherwise, okay?
 7 A. I will.
 8 Q. Thanks.
 9 So going back shortly to your
 10 scope of work, do you teach any coursework on
 11 talc or ovarian cancer?
 12 A. I teach some general courses.
 13 Up until last spring I taught a general
 14 environmental health course for graduate
 15 students in the Master of Public Health
 16 program at the School of Public Health, and
 17 in that course we did touch on things like
 18 environmental exposures that would include
 19 minerals of various varieties, but it was
 20 very cursory.
 21 Q. And was that curriculum
 22 specific to environmental and industrial
 23 products or minerals as opposed to consumer
 24 products?

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1 A. We actually did touch on other
 2 consumer products as well in terms of the
 3 significant environmental problem that we
 4 have currently, but -- regarding the huge
 5 volume of personal care products that goes
 6 into our aqueous waste stream and how that's
 7 affecting the aquatic environment as well as
 8 groundwater and so forth.
 9 As a matter of fact, in that
 10 course, as part of the culmination of the
 11 course, there are student workgroups that
 12 develop presentations on a particular topic,
 13 and the topic of personal care products has
 14 been a favorite choice for the last several
 15 years.
 16 Q. But your curriculum did not
 17 include talc among those products?
 18 MS. O'DELL: Object to the
 19 form.
 20 A. I think talc may have been
 21 represented as an individual mineral on a
 22 slide that listed many minerals.
 23 BY MS. APPEL:
 24 Q. Earlier today you had mentioned

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1 a shared file. Is that shared file something
 2 that you created or plaintiffs' counsel
 3 created?
 4 A. It's something that I think
 5 plaintiffs' counsel created for me to be able
 6 to send them documents and receive documents,
 7 and it's a Dropbox share file. It's -- at
 8 this point I think it might be mine. I'm not
 9 sure just exactly who's in charge of that or
 10 runs it, but it comes directly into my
 11 Dropbox file.
 12 I know I had to boost my
 13 subscription to Dropbox in order to hold the
 14 2 gigabytes of data from -- that we were
 15 putting into there.
 16 Q. Is there anything from that
 17 Dropbox file that you relied upon in forming
 18 your opinion in your report that you have not
 19 already provided to defense counsel?
 20 A. No, everything that was in that
 21 Dropbox that I've relied upon has been
 22 identified here.
 23 Q. Who prepared Exhibit B to your
 24 report?

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1 A. Exhibit B was a list of
 2 articles from the research literature
 3 included in the Dropbox that -- that I think
 4 does not -- I don't know whether it includes
 5 the referenced articles from my report or
 6 not, but they were all part of the same
 7 collection of research articles and
 8 supplemental documents.
 9 Q. And my question, Dr. Carson,
 10 was: Who prepared that exhibit?
 11 A. The exhibit was prepared by the
 12 plaintiffs' attorneys.
 13 Q. You testified earlier that you
 14 have spent approximately 150 to 180 hours in
 15 your expert retention work; is that correct?
 16 A. Correct.
 17 Q. Can you estimate what portion
 18 of that time was spent researching versus
 19 what portion of time was spent actually
 20 drafting your expert report?
 21 A. Those two things are in some
 22 ways difficult to separate because I would --
 23 I was writing my report the entire time that
 24 I was reviewing the research materials and

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1 accumulating information in the draft as a
 2 result of my review of the literature.
 3 So if I had to separate things
 4 out, I would say that, by far, the -- most of
 5 the time has been spent in reading articles
 6 and reviewing them and comparing them with
 7 other articles, and a comparatively small
 8 amount of time has been spent in drafting the
 9 report.
 10 Although there were some
 11 strings of activity which was all report
 12 drafting basically, I would say probably 85
 13 to 90% was research, seeking articles,
 14 reading them, reviewing them, and comparing
 15 them.
 16 Q. And you also testified earlier
 17 today that you discarded information not
 18 relevant or interesting to you.
 19 How did you make that
 20 determination?
 21 MS. O'DELL: Objection to the
 22 form.
 23 A. The things that I discarded did
 24 not seem to fit into my gestalt of the

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1 understanding of this question and the
 2 opinions that I wanted to express. They may
 3 have been interesting information and useful
 4 for some purposes, but not for this
 5 particular report.
 6 BY MS. APPEL:
 7 Q. Was some of that information
 8 that you discarded based on relevancy or that
 9 you determined was not of interest
 10 information that may have been different than
 11 your opinions?
 12 A. No. I didn't discard any
 13 research because the opinions provided
 14 differed from my own. These were things that
 15 really were irrelevant to the question.
 16 I remember finding an awful lot
 17 of geological research stuff that just didn't
 18 have any relevance to the question.
 19 Because I used such broad
 20 search terms, I ended up pulling in a whole
 21 lot of things that were not necessary or
 22 useful, and those just went in the trash.
 23 Q. You testified earlier that you
 24 have not treated any patients with ovarian

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1 cancer; is that correct?
 2 A. Not knowingly, not because of
 3 ovarian cancer.
 4 Q. Have you ever diagnosed any
 5 patients with ovarian cancer?
 6 A. I think when I was in medical
 7 school or residency, I probably participated
 8 in that on several patients.
 9 Q. Have you ever instructed a
 10 patient not to use talcum powder products?
 11 A. I hadn't up until a month or
 12 two ago, but I've been asking people about --
 13 about their talcum powder use just as sort of
 14 a curiosity in mentioning that there might be
 15 a risk.
 16 Q. Do you ask that of all your
 17 patients?
 18 A. I would say no, I don't usually
 19 ask the men that, but I probably should.
 20 Q. And have the responses to those
 21 inquiries of your female patients and their
 22 talcum product use, has that been used at all
 23 to inform your opinions in this case?
 24 A. I don't think so. There have

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1 been very few that I have asked that question
 2 in the last month or so. I've had a limited
 3 clinic schedule during this period of time.
 4 We had the holidays and other things, so I
 5 haven't seen that many patients.
 6 And of those I've asked about
 7 it, it seems about half of the women have had
 8 a history of using talcum powder.
 9 Q. And of those women that are
 10 using -- have told you that they have used
 11 talcum powder, are those women diagnosed with
 12 ovarian cancer?
 13 A. No.
 14 Q. So suffice to say the inquiry
 15 that you've asked of your female patients
 16 concerning their talcum use has nothing to do
 17 with the question that you've been posed in
 18 this particular litigation?
 19 MS. O'DELL: Object to the
 20 form.
 21 A. Actually, that's the only
 22 reason I've been asking them. It's not
 23 something that came to mind earlier. I have
 24 an environmental exposure survey that I

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1 usually administer to my patients, and I have
 2 plans to add that as a question in my
 3 environmental exposure survey. Which I
 4 haven't done already, but will as soon as I
 5 get the opportunity.
 6 BY MS. APPEL:
 7 Q. You testified earlier today
 8 that you do not believe there was ever a
 9 point where talcum powder did not contain
 10 asbestos, correct?
 11 A. Yes.
 12 Q. So in forming your opinion in
 13 your report, you've assumed that the talcum
 14 powder does contain asbestos, correct?
 15 MS. O'DELL: Object to the
 16 form.
 17 A. Well, I think the asbestos
 18 contribution to this whole issue is important
 19 and significant. I think there's good
 20 evidence that whatever we call talcum powder
 21 is carcinogenic and responsible for ovarian
 22 cancer -- as a cause of ovarian cancer, but I
 23 can't say -- I can't say based on looking at
 24 a can of talcum powder whether or not it has

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1 asbestos in it or how much.
 2 BY MS. APPEL:
 3 Q. Have you formed an opinion,
 4 Dr. Carson, on whether there's a relationship
 5 between pure talc and ovarian cancer?
 6 MS. O'DELL: Objection to form.
 7 A. My opinion is there is, but
 8 that's based on the research reports that
 9 have been done using so-called pure talc,
 10 talcum powder, and I am -- I -- my opinion is
 11 that it's unlikely that those test substances
 12 actually are pure talc.
 13 BY MS. APPEL:
 14 Q. So again, Dr. Carson, in
 15 forming your opinions, you have done so on
 16 the belief that all the talc powder products
 17 or just pure talc do, in fact, contain
 18 asbestos?
 19 MS. O'DELL: Objection to form.
 20 A. It is my opinion that all
 21 talcum powder products do contain a certain
 22 amount of asbestos, even if it's extremely
 23 small.
 24 My opinions have been formed

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1 based on research that has been done on
 2 available talcum powder products, so I guess
 3 the research would have been done using some
 4 small quantity of asbestos in all of those
 5 studies.
 6 BY MS. APPEL:
 7 Q. You also testified today,
 8 Dr. Carson, that you have found in your
 9 research that there is a dose-response
 10 relationship between talcum powder products
 11 and ovarian cancer, correct?
 12 A. Well, a number of the research
 13 studies, the epidemiology studies have shown
 14 positive and statistically significant
 15 trends.
 16 Q. And those trends that you're
 17 relying on, Dr. Carson, actually only relate
 18 to duration and frequency, correct?
 19 MS. O'DELL: Objection to form.
 20 A. Yes, they do relate to duration
 21 and frequency, which is the only surrogate we
 22 have for dose.
 23 BY MS. APPEL:
 24 Q. So in forming your opinion,

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1 Dr. Carson, you have not determined a level
 2 of harmful exposure to talcum powder products
 3 that causes ovarian cancer?
 4 A. That's correct.
 5 Q. And you did not conduct a dose
 6 assessment between talcum powder products and
 7 ovarian cancer, correct?
 8 MS. O'DELL: Objection to form.
 9 A. Well, I did not conduct a
 10 dose-response, but I am of the opinion that
 11 there's no safe threshold for exposure to a
 12 carcinogen until such a threshold is
 13 identified.
 14 BY MS. APPEL:
 15 Q. And does that include
 16 Category 2B particles as well --
 17 MS. O'DELL: Objection.
 18 BY MS. APPEL:
 19 Q. -- that it's a possible
 20 carcinogen?
 21 MS. O'DELL: Objection to form.
 22 A. It includes the talc that was
 23 discussed in the IARC report. Those
 24 conclusions have nothing to do with how it's

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1 classified by IARC.
 2 BY MS. APPEL:
 3 Q. But it's your opinion that a
 4 possible carcinogen -- strike that.
 5 It's your opinion that any dose
 6 of a possible carcinogen can cause cancer?
 7 MS. O'DELL: Objection to form.
 8 A. Yes, I think there is a
 9 potential for any dose of a carcinogen to
 10 cause a cancer. There's also the principle
 11 that the lower the dose, the less likely it
 12 is, the lower the risk is for developing a
 13 cancer.
 14 BY MS. APPEL:
 15 Q. And your opinion extends to
 16 those particles that have not been identified
 17 as carcinogens, but may just be possible
 18 carcinogens?
 19 A. I think talc has been
 20 identified as a carcinogen.
 21 Q. So you disagree with the IARC
 22 classification?
 23 A. The IARC 2B classification is a
 24 carcinogenic classification.

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1 Q. But you recognize and -- that
 2 there are different types of categories that
 3 IARC has?
 4 A. Yes.
 5 Q. And that -- it's that talc that
 6 does not contain asbestos was not, in fact,
 7 categorized as a Group 1, correct?
 8 A. That's correct.
 9 Q. So is it your opinion, then,
 10 looking at other 2B-classified particles by
 11 IARC, that any exposure to pickled vegetables
 12 would cause cancer?
 13 A. We know that there are a number
 14 of carcinogens that are regularly present in
 15 things like the food that we eat. We have a
 16 rule that says that those things should not
 17 be included in food items unless they have
 18 passed a particular exemption process.
 19 Pickled vegetables are
 20 something that people have been familiar with
 21 and have been using for hundreds of years,
 22 and things like talcum powder are things that
 23 have been used for -- well, at least a
 24 hundred years, but probably considerably

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1 longer.
 2 And whether or not those things
 3 are carcinogens, there are people who still
 4 find enough value to offset that factor in
 5 their own lives and they can make their own
 6 decisions regarding their exposure.
 7 It's a similar concept to
 8 people who choose to smoke. Although smoking
 9 is an addictive behavior, people are aware
 10 that it causes disease, including cancer, and
 11 yet they continue to smoke.
 12 We continue to eat grilled
 13 meats, even -- most of us know now that
 14 grilled meats contain polycyclic aromatic
 15 hydrocarbons that are known carcinogens, some
 16 of them Group 1 carcinogens, and yet, we
 17 continue that practice and revel in it even.
 18 That's just part of what we do as human
 19 beings.
 20 The issue with talc is a
 21 complicated question in my mind. I think I'm
 22 straying a bit from your -- from your
 23 question, but baby powder, for example, is
 24 something that has a very -- very dear sort

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1 of relationship to many people.
 2 The experience with that from
 3 the time you were a baby until you grow up
 4 and have your own children involves a lot of
 5 the use of baby powder in many, many
 6 households. That's a difficult relationship
 7 to break. It's psychological as much as it
 8 is knowledge based.
 9 So as we go through the
 10 decades, we get a little safer and safer as
 11 we begin to peel these habits, these
 12 dangerous habits away from our lives and
 13 accept better lifestyles.
 14 MR. ZELLERS: Move to strike as
 15 nonresponsive.
 16 MS. APPEL: Respectfully --
 17 MS. BOCKUS: Is he finished?
 18 MR. ZELLERS: I don't think so.
 19 THE WITNESS: I can go on.
 20 BY MS. APPEL:
 21 Q. Yeah. My question was more
 22 narrow, and I was analogizing your opinion as
 23 to talcum powder and was asking about other
 24 2B classifications, and my example --

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1 A. Pickled vegetables.
 2 Q. -- I had was pickled
 3 vegetables, and the question was whether or
 4 not is your opinion that any consumption of
 5 pickled vegetables causes cancer?
 6 MS. O'DELL: Objection to form.
 7 A. I believe the primary form of
 8 cancer that's potentially related with
 9 pickled vegetables is stomach cancer, and
 10 there is a slight increase in risk with
 11 consumption of pickled vegetables for
 12 everybody who does it.
 13 BY MS. APPEL:
 14 Q. Okay. And what about gasoline
 15 or exhaust?
 16 A. Gasoline meaning the fuel?
 17 Q. Yes.
 18 A. Well, gasoline used to contain
 19 a significant amount of benzene, which was
 20 a -- determined to be a carcinogenic
 21 substance. In recent years, most of the
 22 benzene has been removed from gasoline, so
 23 now there's very little benzene in vapors
 24 that are expressed.

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1 But there's a small amount. So
 2 when you inhale gasoline vapors, you are also
 3 exposing yourself to a very small amount of a
 4 carcinogenic substance.
 5 As far as exhaust is concerned,
 6 diesel exhaust in particular has -- contains
 7 particles that have been identified through
 8 various bioassays to be carcinogenic. So
 9 diesel exhaust is regulated as a carcinogenic
 10 material, even though we continue to be
 11 exposed.
 12 Q. And it's your opinion that any
 13 exposure that we all incur related to exhaust
 14 will cause us cancer?
 15 MS. O'DELL: Objection to form.
 16 A. It will cause an increase in
 17 risk of cancer. Doesn't necessarily cause
 18 cancer in everybody.
 19 BY MS. APPEL:
 20 Q. Okay. Are you aware that Saed
 21 has been hired by plaintiffs' counsel in this
 22 litigation?
 23 A. I am. And when I misspoke
 24 earlier today regarding the Taher paper, I

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1 was thinking of the Saed paper.
2 Q. Okay. Last question: Counsel
3 was asking you about the migration process,
4 and you mentioned that in the course of
5 particles moving up the track, that some of
6 it may come back out even after it reaches
7 the fluid surrounding the ovaries, correct?
8 A. Yes.
9 Q. So if particles have the
10 ability to come back out, that means that
11 there is, in fact, some form of an intrinsic
12 elimination system.
13 A. Well, if this is all based on
14 mass action, it would not necessarily be an
15 intrinsic elimination system, and I believe
16 that talc particles, once they produce an
17 inflammatory response, they become
18 sequestered within that inflammatory milieu
19 and no longer are available for movement back
20 out into the fluid.
21 I'm sure there's some small
22 percentage of them that are an exception to
23 that, but for the majority, that would be the
24 case.

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1 MS. APPEL: Okay. That's all I
2 have. Thank you, Dr. Carson.
3 MS. TINSLEY: I don't have any
4 questions.
5 MS. O'DELL: Okay. Why don't
6 we take a short break.
7 THE VIDEOGRAPHER: Off the
8 record at 5:37, end of Tape 4.
9 (Recess taken, 5:37 p.m. to
10 5:44 p.m.)
11 THE VIDEOGRAPHER: We're on the
12 record at 5:44, beginning of Tape 5.
13 MS. O'DELL: Dr. Carson, I
14 don't have any questions, so this will
15 conclude your deposition.
16 MR. ZELLERS: Thank you,
17 Doctor.
18 THE VIDEOGRAPHER: Going off
19 the record, 5:44. End of deposition,
20 end of Tape 5.
21 (Proceedings recessed at
22 5:45 p.m.)
23 --o0o--
24

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1 CERTIFICATE
2 I, MICHAEL E. MILLER, Fellow of
3 the Academy of Professional Reporters,
4 Registered Diplomate Reporter, Certified
5 Realtime Reporter, Certified Court Reporter
6 and Notary Public, do hereby certify that
7 prior to the commencement of the examination,
8 ARCH I. "CHIP" CARSON, M.D., Ph.D. was duly
9 sworn by me to testify to the truth, the
10 whole truth and nothing but the truth.
11 I DO FURTHER CERTIFY that the
12 foregoing is a verbatim transcript of the
13 testimony as taken stenographically by and
14 before me at the time, place and on the date
15 hereinbefore set forth, to the best of my
16 ability.
17 I DO FURTHER CERTIFY that pursuant
18 to FRCP Rule 30, signature of the witness was
19 not requested by the witness or other party
20 before the conclusion of the deposition.
21 I DO FURTHER CERTIFY that I am
22 neither a relative nor employee nor attorney
23 nor counsel of any of the parties to this
24 action, and that I am neither a relative nor
25 employee of such attorney or counsel, and
26 that I am not financially interested in the
27 action.
28 MICHAEL E. MILLER, FAPR, RDR, CRR
29 Fellow of the Academy of Professional Reporters
30 NCRA Registered Diplomate Reporter
31 NCRA Certified Realtime Reporter
32 Certified Court Reporter
33 Notary Public in and for the
34 State of Texas
35 My Commission Expires: 7/9/2020
36 Dated: January 22, 2019

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1 INSTRUCTIONS TO WITNESS
2
3 Please read your deposition over
4 carefully and make any necessary corrections.
5 You should state the reason in the
6 appropriate space on the errata sheet for any
7 corrections that are made.
8 After doing so, please sign the
9 errata sheet and date it.
10 You are signing same subject to
11 the changes you have noted on the errata
12 sheet, which will be attached to your
13 deposition.
14 It is imperative that you return
15 the original errata sheet to the deposing
16 attorney within thirty (30) days of receipt
17 of the deposition transcript by you. If you
18 fail to do so, the deposition transcript may
19 be deemed to be accurate and may be used in
20 court.
21
22
23
24

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<div style="text-align: center;">ERRATA</div> <div style="text-align: center;">PAGE LINE CHANGE</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div>	<div style="text-align: center;">LAWYER'S NOTES</div> <div style="text-align: center;">PAGE LINE</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div>
<div style="text-align: right; padding-right: 10px;">Page 367</div> <div style="text-align: center;">ACKNOWLEDGMENT OF DEPONENT</div> <p>I, ARCH I. "CHIP" CARSON, M.D., Ph.D., do hereby certify that I have read the foregoing pages and that the same is a correct transcription of the answers given by me to the questions therein propounded, except for the corrections or changes in form or substance, if any, noted in the attached Errata Sheet.</p> <div style="text-align: center;">_____</div> <div style="text-align: center;">ARCH I. "CHIP" CARSON, M.D., Ph.D. DATE</div> <p>Subscribed and sworn to before me this _____ day of _____, 20 ____.</p> <p>My commission expires: _____</p> <div style="text-align: center;">_____</div> <p>Notary Public</p>	Empty space for Page 368 content